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SOME MOLLUSCA FROM THE SOLOMON ISLANDS.

BY WILLIAM F. CLAPP.

WITH FIVE PLATES.



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No. 11.—*Some Mollusca from the Solomon Islands.*

BY WILLIAM F. CLAPP.

THE specimens upon which this paper is based, were gathered by Dr. W. M. Mann in 1916. The value of the collection has been greatly enhanced by the exact localities furnished by Dr. Mann, and also by the abundance of unusually well-preserved specimens of many of the species. This has made it possible to examine the animal and when of interest these observations have been included in this paper.

A careful census of the species previously recorded from the Solomon Islands, after eliminating records certainly erroneous, gives a total of one hundred and forty-six species and twenty-two varieties. Several of these are doubtful, such as *Simpulopsis salomonia* Pfeiffer, and will probably eventually have to be removed from the list when the true habitat is discovered. There are also one or more species which have been recorded from the Admiralty Islands or elsewhere, which may be found to inhabit the Solomons. Dr. Mann succeeded in finding forty-eight species and five varieties. Of these twenty-four species (with one new genus) and one variety, approximately 50%, were new, and twenty-four species and four varieties, had been previously recorded. It appears from these figures that the Solomon Islands offer a rich field for the shell collector.

#### STREPTAXIDAE.

##### 1. STREPTAXIS COSTULOSUS (Pfeiffer).

*Helix costulosa* Pfeiffer, Proc. Zool. soc. London, 1852, p. 136. Insulis Salomonis.

*Streptaxis costulosa* Tryon, Man. conch., 1885, ser. 2, 1, p. 63, pl. 12, fig. 30-32.

#### HELICARIONIDAE.

##### 2. HELICARION AUREUS (Pfeiffer).

*Vitrina aurea* Pfeiffer, Proc. Zool. soc. London, 1854, p. 122. Salomon's Islands. Reeve, Conch. Icon., 1862, 13, pl. 9, sp. 69. Tryon, Man. conch., 1885, ser. 2, 1, p. 159.

It seems probable that the shell figured by Reeve is a Helicarion. Tryon lists *aurea* as unfigured overlooking Reeve's figure.

## 3. HELICARION PLANOSPIRUS (Pfeiffer).

*Vitrina planospira* Pfeiffer, Zeitschr. malak., 1853, p. 51. *Insulis Salomonis*.  
Reeve, Conch. Icon., 1862, 13, pl. 9, sp. 65.

*Helicarion planospirus* Tryon, Man. conch., 1885, ser. 2, 1, p. 171, pl. 38, fig. 64-66. Smith, Proc. Zool. soc. London, 1885, p. 588. Ugi, Santa Anna (Guppy), San Christoval. Guadalecanar (Maegillivray) Oberwimmer, Denks. K. akad. wiss., 1909, 84, p. 515. Bougainville.

Pamua, Wainoni Bay, Wai-ai, San Christoval Id.; Three Sisters Id.; Paiua, Ugi Id.; Auki, Malaita Id.

The animal in alcohol is dark red and measures 22 mm. in total length. The right shell-lobe of the mantle is orbiculate, with a thickened ridge curving from the posterior to the anterior edge. The left shell-lobe is reflected over about one fourth of the shell with a sharp thickened ridge extending backward along the left side from the anterior edge to that portion of the posterior edge which is nearly opposite the apex of the shell. There is a deep depression in the posterior portion of the dorsal surface of the foot to contain the shell. The tail is sharp above with a large mucous pore and overhanging dorsal projection. The pedal line is very distinct and the sole of the foot shows clearly a well-defined central area.

The radula (Fig. 1, M. C. Z. 32,540, slide, 1,623) is about 3.1 mm.

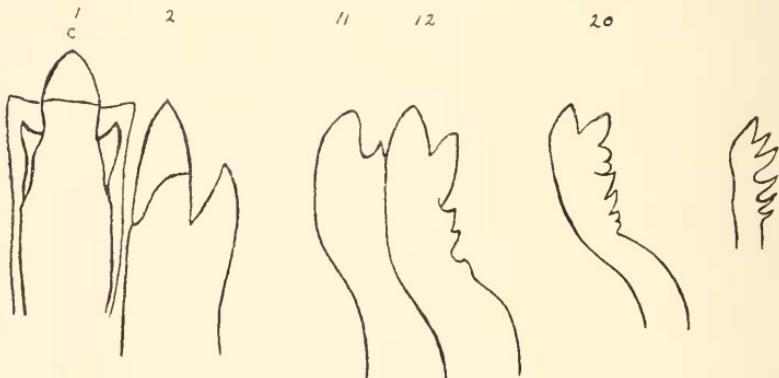


FIG. 1.—*Helicarion planospirus* (Pfeiffer) Radula.

long and 2 mm. wide consisting of 150 rows with a formula of approximately 250-(10?)-1-(10?)-250. The transition from the laterals to the uncini is gradual, the large cusp of the lateral decreasing in size, until it approaches in size and shape its denticle thus rendering those

teeth from the twelfth on to appear bifid. At about the twelfth tooth small denticles appear on the outer edge. The outermost ten or twelve uncini are small and very spinous.

In size and shape the radula of *H. planospirus* is not very similar to the radulae of some other species of *Helicarion* which have been figured, (Tyron, Man. conch., 1885, ser. 2, 1, p. 137, pl. 29, fig. 12. Hedley, Proc. Linn. soc. N. S. W., 1891, ser. 2, 6, p. 24, pl. 2, fig. 11; p. 687, pl. 41, fig. 30), differing by being almost two thirds as broad as it is long and also in the large number of teeth in a row. The shape of the individual teeth are, however, typically *Helicarion*.

#### 4. *HELICARION MALAITAENSIS*, sp. nov.

Plate 1, fig. 1-5.

TYPE. M. C. Z. 36,225. Auki, Malaita Id.

Shell depressed, thin, shining, with faint oblique arcuate growth-striae above, hardly discernible below, and very faint spiral impressed lines on the upper half of the body-whorl, corneous, lighter on base, whorls  $2\frac{1}{2}$ , spire nearly flat, suture impressed, columellar lip slightly membranous, body-whorl flattened above, convex below.

G. d. 17 mm. I. d. 12 mm. alt. 8.5 mm.

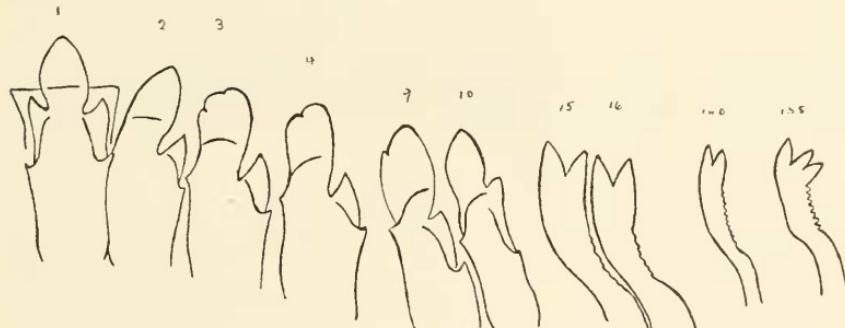


Fig. 2.—*Helicarion malaitaensis* Clapp. Radula.

The shell differs from that of *H. planospirus* in being larger, more solid and much darker in color, and from *H. aurea* Pfeiffer (Reeve, Conch. Icon., 1862, 13, pl. 9, sp. 69) in size and shape.

The animal in alcohol is gray, 32 mm. in length. The right shell-lobe extends completely over the apex of the shell, the left covering the anterior quarter of the body-whorl. The foot, divided longi-

tudinally into three parts, is sharply carinated above, excepting for the broad depression in which the body-whorl of the shell rests. The tail, with a large dorsal projection and mucous pore. The pedal-line is very distinct.

Radula (Fig. 2, M. C. Z. 36,225, slide 1,629, 1,630) 3 mm. long, 2 mm. wide, consisting of 120 rows with about 350 teeth in each row. The formula being 165-8-1-8-165. The teeth differ from those of *H. planospiratus* in having the large denticle of all but the innermost of the lateral teeth much broader, and with minute denticles on the cutting edge. The denticles on the outer edge of the uncini are much smaller and more numerous.

### RHYTIDIDAE.

#### 5. DELOS RAPIDA var. B MAJOR (Pfeiffer).

*Helix rapida* var. *B major* Pfeiffer, Zeitschr. malak., 1853, p. 54. Insulis Salomonis.

*Elaea rapida* var. *B major* Tryon, Man. conch., 1883, ser. 2, 1, p. 129.

It seems probable that this variety should be removed from the Solomon Island species, the somewhat similar appearance of New Zealand Delos to the young of Rhytida, having originally caused the confusion.

#### 6. RHYTIDA VILLANDREI (Gassies).

*Helix villandrei* Gassies, Journ. conch., 1865, p. 210. New Caledonia.

*Helix (Rhytida) villandrei* Brazier, Proc. Zool. soc. London, 1872, p. 805. Recherche Bay, San Christoval, Solomon Group. Smith, Proc. Zool. soc. London, 1885, p. 594.

*Rhytida villandrei* Tryon, Man. conch., 1885, ser. 2, 1, p. 119, pl. 23, fig. 45, 46. Gude, Proc. Mal. soc. London, 1907, 7, p. 235.

*Helix (Rhytida) boydii* Angas, Proc. Zool. soc. London, 1869, p. 626, pl. 48, fig. 8. Recherche Id.

Wainoni Bay, San Christoval Id.

Brazier (1872) states that this species though described from New Caledonia was "taken there by missionaries."

#### 7. MACROCYCLOIDES VERONICA (Pfeiffer).

*Helix veronica* Pfeiffer, Proc. Zool. soc. London, 1853, p. 58. Salomon's Islands. Reeve, Conch. Icon., 1853, fig. 1028.

*Helix (Macrocyclodes) veronica* Tryon, Man. conch., 1887, ser. 2, 3, p. 49, pl. 5, fig. 98.

## 8. MACROCYCLOIDES EUSTROPHES (A. D. Brown).

*Helix eustrophes* A. D. Brown, Journ. conch., 1870, **18**, p. 391. Insulis Salomon dictis (Cox).

*Helix (Macrocyclodes) eustrophes* Tryon, Man. conch., 1887, ser. 2, **3**, p. 49.

## ZONITIDAE.

## 9. NANINA (MICROCYSTIS) NEMATOPHORA (Pfeiffer).

*Helix nematophora* Pfeiffer, Proc. Zool. soc. London, 1854, p. 49. Salomon's Islands. Reeve, Conch. Icon., 1854, **7**, fig. 1333.

*Nanina (Microcystis) nematophora* Tryon, Man. conch., 1886, ser. 2, **2**, p. 114, pl. 38, fig. 46.

## 10. NANINA (XESTA) WANGANENSIS (Cox).

*Helix wanganensis* Cox, Proc. Zool. soc. London, 1870, p. 82. Wanga, San Christoval, Solomon Islands.

*Nanina (Microcystis) wanganensis* Tryon, Man. conch., 1886, ser. 2, **2**, p. 124.

*Xesta wanganensis* Gude, Proc. Mal. soc. London, 1907, **7**, p. 235, pl. 21, fig. 15a-c.

The measurements "Diam. maj. 13, min. 12 mm.; alt. 8 mm." given by Gude of a specimen contributed by Dr. Cox, are so very different proportionately, from those of the original description, "Diam., greatest 0.31, least 0.21, height 0.22 of an inch," that it is impossible that the two specimens measured belong to the same species.

## 11. NANINA (XESTA) COMPLUVIATA (Cox).

*Helix compluviatus* Cox, Proc. Zool. soc. London, 1871, p. 646, pl. 52, fig. 10. Solomon Islands.

*Nanina (Hemiplecta) compluviata* Tryon, Man. conch., 1886, ser. 2, **2**, p. 44, pl. 14, fig. 100.

## 12. NANINA (XESTA) CAPITANEA (Pfeiffer).

*Helix capitanea* Pfeiffer, Proc. Zool. soc. London, 1854, p. 49. San Christoval, Solomon Islands (Capt. Keppell). Reeve, Conch. Icon., 1854, **7**, fig. 1279.

*Nanina (Xesta) capitanea* Tryon, Man. conch., 1886, ser. 2, **2**, p. 72, pl. 19, fig. 83.

## 13. NANINA (XESTA) INORNATA (Hombron and Jacquinot).

*Helix inornata* Hombron and Jacquinot, Voy. Pole Sud, 1854, 5, p. 7, pl. 4, fig. 11-14. Isles Salomon.

The placing of this species by the authors in the synonymy of *nouleti* Le Guillou, from Fiji, a course which has been followed by subsequent writers, is open to question. Since the land-shell fauna of the Fiji Islands is quite different from that of the Solomon Islands, it is not likely that any Nanina will be found to be identical in both groups.

## 14. NANINA (XESTINA) SALOMONIS (Le Guillou).

*Helix salomonis* Le Guillou, Revue Zool., 1842, p. 137. Isles Salomon.  
*Nanina (Xestina) salomonis* Tryon, Man. conch., 1886, ser. 2, 2, p. 87.

## 15. NANINA (MACROCHLAMYS) KEPELLI (Pfeiffer).

*Helix keppelli* Pfeiffer, Proc. Zool. soc. London, 1854, p. 50. San Christoval, Salomons Islands (Capt. Keppell). Reeve, Conch. Icon., 1854, 7, fig. 1305.

*Nanina (Macrochlamys) keppelli* Tryon, Man. conch., 1886, ser. 2, 2, p. 130, pl. 43, fig. 35.

## 16. NANINA (OXYTES) SUBTECTA (Pfeiffer).

*Helix subiecta* Pfeiffer, Proc. Zool. soc. London, 1855, p. 91. Salomons Islands.  
*Helix eucharis* Reeve (*non* Deshayes), Conch. Icon., 1854, 7, fig. 1298.

*Nanina (Oxytes) subiecta* Tryon, Man. conch., 1886, ser. 2, 2, p. 130, pl. 43, fig. 35.

A specimen in the Pease collection, labeled *Helix subiecta* Pfeiffer, Solomon Islands, is a Dendrotrochus. The figure in Reeve also suggests a Dendrotrochus rather than a Nanina.

## 17. NANINA GLABERRIMA (Pfeiffer).

*Helix glaberrima* Pfeiffer, Proc. Zool. soc. London, 1854, p. 52. Salomon's Islands. Reeve, Conch. Icon., 1854, 7, fig. 1317.

*Nanina (Thalassia) glaberrima* Clessin, Pfeiffer, Nom. Helic. viv., 1881, p. 46.  
*Charopa glaberrima* Tryon, Man. conch., 1886, ser. 2, 2, p. 212, pl. 62, fig. 46.

## 18. NANINA RADIARIA (Pfeiffer).

*Helix radiaria* Pfeiffer, Proc. Zool. soc. London, 1854, p. 35. Salomon's Islands. Reeve, Conch. Icon., 1854, 7, fig. 1322.  
*Charopa radiaria* Tryon, Man. conch., 1886, ser. 2, 2, p. 213, pl. 62, fig. 52.

Probably not a Nanina, certainly not a Charopa.

## 19. FRETUM SOLIDIUSCULA (Smith).

*Helix (Nanina) solidiuscula* Smith, Proc. Zool. soc. London, 1885, p. 589, pl. 36, fig. 2-2b. Santa Anna Islands.  
*Nanina (Eurypus) solidiuscula* Tryon, Man. conch., 1886, ser. 2, 2, p. 111, pl. 37, fig. 3-5.

## 20. FRETUM TREASURYENSIS (Tryon).

*Helix (Nanina) nitidissima* Smith (*non* M'Il'd'f), Proc. Zool. soc. London, 1885, p. 589, pl. 36, fig. 1-1b. Treasury Id., Bougainville Straits.  
*Nanina (Eurypus) treasuryensis* Tryon, Man. conch., 1886, ser. 2, 2, p. 111, pl. 37, fig. 100-102.  
*Nanina nitidissima* Dall, Field mus. nat. hist. Zool., 1910, 7, p. 215.

## 21. FRETUM MALAITAENSIS, sp. nov.

Plate 1, fig. 6-8.

TYPE. M. C. Z. 32,553. Auki, Malaita Id.

Shell minutely deeply perforate, thin, shining, early whorls smooth, very faint growth-striae on the upper half of the last whorl, corneous, whorls  $5\frac{1}{2}$ , convex, regularly increasing in size; last whorl not descending, periphery rounded. Aperture slightly oblique. Peristome simple. Columella obliquely descending, thickened above and reflexed, nearly covering the umbilicus, adnate.

G. d. 14.9 mm. l. d. 13.3 mm. alt. 9.5 mm.

This shell is very similar to *Nanina keppelli* Pfeiffer (Proc. Zool. soc. London, 1854, p. 50) from San Christoval, but differs, in being less depressed, and in the shape of the columella, which, in *keppelli* is described as, "arcuatim descendente." Particular stress is placed on this character by Pfeiffer (Mon. Helic. Viv., 1859, 4, p. 54) and the figure he refers to (Reeve, Conch. Icon., 7, t. 187, sp. 1305) shows clearly an arcuately descending columella which Pfeiffer (1859) contrasts with the very obliquely descending columella of *resplendens*

Philippi. The columella of *malaitaensis* is very similar to that of *resplendens* as figured by Reeve (Conch. Icon., 7, t. 81, sp. 430).

The animal of *malaitaensis* possesses the caudal mucous pore,



FIG. 3.—*Fretum malaitaensis* Clapp. Radula.

pedal-groove, and divided ventral surface of the foot, of the genus *Eurypus* Semper (= *Fretum* Sykes, Proc. Mal. soc. London, 1900, 4, p. 140). Radula (Fig. 3, M. C. Z. 36,768, slide 1,631) containing about 100 rows of teeth with a formula of 35-12-1-12-35.

## 22. *FRETUM CONCAVUM*, sp. nov.

Plate 1, fig. 9-11.

**TYPE.** M. C. Z. 32,552. Auki, Malaita Id.

Shell perforate, thin, shining, early whorls smooth, later whorls with very strong numerous regularly spaced growth-wrinkles above, which end abruptly at the carina, very smooth below. Embryonic shell consisting of two whorls, darker in color than the later whorls. Shell chamois colored above, lighter below, fading to nearly white in the umbilical region. Whorls  $5\frac{1}{2}$ , convex, regularly increasing in size, outline of spire, concave, last whorl not descending, strongly shouldered. Aperture nearly straight. Peristome simple. Columella obliquely descending, strongly thickened and reflexed in a narrow tongue-like process over a portion of the umbilical region.

G. d. 10 mm. l. d. 8.6 mm. alt. 5.9 mm.

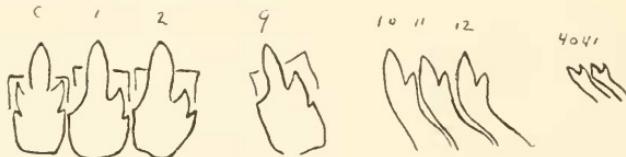


FIG. 4.—*Fretum concavum* Clapp. Radula.

The concave outline of the spire is the most striking character of the shell. The mantle of the animal is black with large irregular milk-white patches which show clearly through the semitransparent

shell. The radula (Fig. 4, M. C. Z. 32,552, slide 1,633) consists of about 100 rows of teeth with a formula of 45-8-1-8-45. The teeth are not unlike those of *Fretum suteri* Sykes (Proc. Mal. soc. London, 1900, 4, p. 140, pl. 13, f. 19).

### 23. FRETUM MANNI, sp. nov.

Plate 1, fig. 12-14.

**TYPE.** M. C. Z. 32,550. Auki, Malaita Id.

Shell perforate, thin, depressed, shining, smooth above and below, color yellow-ochre above and below, with what appears to be a narrow red band at the suture caused by the overlapping of the whorls; suture very slightly impressed, whorls  $5\frac{1}{2}$  regularly increasing in size, flat above, rounded below, slightly shouldered, outline of the spire nearly straight, last whorl not descending. Aperture oblique. Peristome simple. Columella obliquely descending, slightly thickened, very slightly flattened and reflexed only within the umbilical depression.

G. d. 7.3 mm. l. d. 6.4 mm. alt. 5.9 mm.

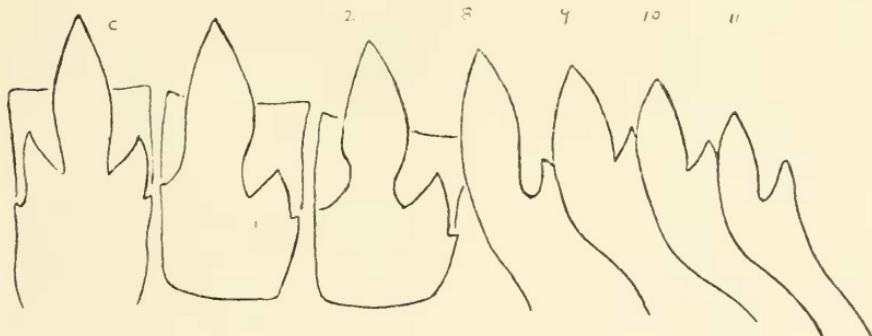


FIG. 5.—*Fretum manni* Clapp. Radula.

The reddish suture-line caused by the overlapping of the whorls while noticeable in many species of *Fretum*, is particularly well marked in this species. The radula (Fig. 5, M. C. Z. 32,550, slide 1,639) has a formula of 40-7-1-7-40.

### 24. FRETUM PAMUAENSIS, sp. nov.

Plate 2, fig. 1-3.

**TYPE.** M. C. Z. 36,773. Pamua, San Christoval Id.

Shell perforate, thin, depressed, shining, with numerous fine growth-wrinkles above, smooth below, transparent pinkish buff above and below, suture slightly impressed; whorls  $4\frac{1}{2}$  regularly increasing in size, somewhat flat above, rounded below, last whorl obsoletely angled, the growth-plicae extending from the suture and ending quite abruptly at the angle of the periphery, last whorl not descending. Aperture oblique. Peristome simple. Columella obliquely descending, thickened and slightly reflexed within the umbilical depression.

G. d. 7.1 mm. I. d. 6.4 mm. alt. 4. mm.

Similar in general appearance to *F. manni*, but differs in possessing one less whorl, the whorls therefore increasing in size more rapidly, in the suture being more strongly impressed, the whorls of the spire less flat, the upper surface strongly plicate in contrast to the smooth upper surface of *F. manni*. The color is very much lighter than in *F. manni*.

#### 25. FRETUM SMITHI, sp. nov.

Plate 2, fig. 4-6.

TYPE. M. C. Z. 36,769. Ugi Id.

Shell perforate, very thin, finely plicate, with numerous growth-wrinkles above, smooth below, transparent honey-yellow above and below, suture strongly impressed. Whorls 5, convex above and below, last whorl rounded at the periphery, not descending. Aperture slightly oblique. Peristome simple. Columella arcuately descending, very slightly thickened and reflexed at the umbilicus.

G. d. 7 mm. I. d. 6.3 mm. alt. 4.3 mm.

Five specimens of this species were collected on Ugi by Dr. Mann, of which one bears the more exact locality of Paiua, Ugi. The shell is somewhat similar to *F. pamuaensis* but may be distinguished from that species by the less depressed spire, less oblique columella, and more deeply impressed sutures. The radula is typically Fretum in character, the formula being 45-8-1-8-45.

I have named this shell after Mr. E. A. Smith, who, in 1885 published an account of the land and fresh-water shells collected by Mr. H. B. Guppy in the Solomon Islands.

#### 26. FRETUM SORORUM, sp. nov.

Plate 2, fig. 7-9.

TYPE. M. C. Z. 32,551. Three Sisters Id.

Shell perforate, thin, transparent, shining, depressed, with many faint microscopic growth-striae, strongest at the suture, nearly disappearing at the

periphery and on the base; color antique-brown, fading to nearly white in the umbilical region, suture slightly impressed. Whorls  $4\frac{1}{2}$ , last whorl rounded at the periphery, not descending. Aperture slightly oblique. Peristome simple. Columella arcuately descending, thickened.

G. d. 4.6 mm. I. d. 4.1 mm. alt. 2.3 mm.

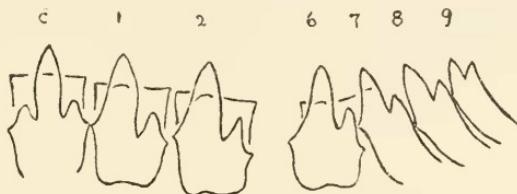


FIG. 6.—*Fretum sororum* Clapp. Radula.

From any of the preceding species of the genus, this shell is very easily distinguished by its small size. The animal has the posterior dorsal surface flattened, as in the other species of *Fretum*. The sole of the foot is tripartite, showing clearly a narrow central area. The radula (Fig. 6, M. C. Z. 32,551, slide 1,633, 1,644) is similar to those of the preceding species, having a formula of 40-6-1-6-40, and containing about 100 rows. The dividing line between the laterals and the marginals is more distinct than in any of the preceding species of *Fretum*, the change being unusually abrupt. The reproductive organs, heart, and kidney are shown in (Fig. 7, 8, M. C. Z. 32,551, slide 1642).

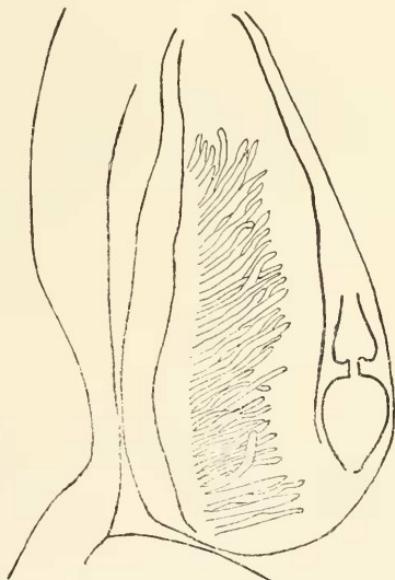


FIG. 7.—*Fretum sororum* Clapp. Heart and kidney.

## 27. TROCHOMORPHA AUKIENSIS, sp. nov.

Plate 2, fig. 10-15.

**TYPE.** 32,535. Auki, Malaita Id.

Shell solid, depressed, broadly umbilicate, the umbilicus contained in the entire diameter of the shell four times. Color, light corneous, with four chest-

nut colored bands, the first, narrow, adjacent to the thread-like white line of the suture; the second very broad, covering most of the upper portion of the whorl; the third at the periphery, viewed exteriorly, apparently divided by the white sutural flange, particularly in young specimens, but seen through the aperture, appearing as one band; the fourth, a faint, ill-defined, lighter colored band, midway between the periphery and the umbilical region. Surface, above, with coarse, oblique nearly evenly spaced growth-lines, about six

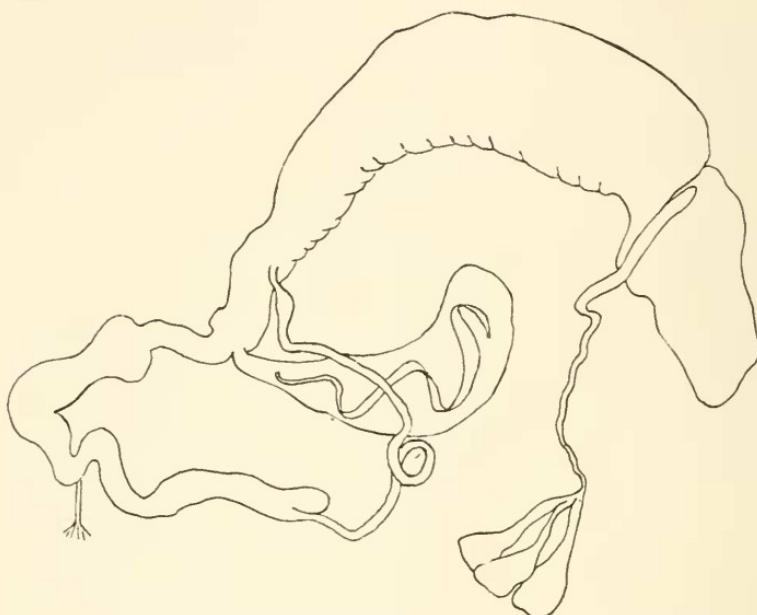


FIG. 8.—*Fretum sororum* Clapp. Reproductive organs.

per millimeter; below, with extremely fine growth-lines, about twenty per millimeter, accentuated, particularly in the region just below the periphery, by the periostracum. Whorls 5, convex above and below. Protoconch, consisting of  $1\frac{1}{2}$  whorls. Suture impressed. Periphery, carinate, in young specimens acutely keeled and with a white flange. Aperture, very oblique. G. d. 22 mm. l. d. 18 mm. alt. 7.4 mm.

Aperture g. d. 9 mm. l. d. 5.5 mm.

Umbilicus g. d. 5.5 mm.

There is no species from the Solomon Islands with which this could be confused.

The radula (Fig. 9, M. C. Z. 32,525, slide 1,845) exhibits some remarkable characters. The bifid marginals which are supposed to be char-

acteristic of the Trochomorphidae, but which do not occur in *T. merziana*, appear in this species. In the specimen examined, at the 10th lateral, a small denticle appears, rapidly increasing in size, until at the 16th tooth it had attained equal size and the tooth is bicuspid. At the 20th and 21st teeth the cusp decreases in size rapidly and disappears entirely at the 22nd, which is a unicuspид lateral very similar to those of *T. merziana*, and the remainder of the teeth in the row are of this pattern. On the radula of this species there are then the follow-

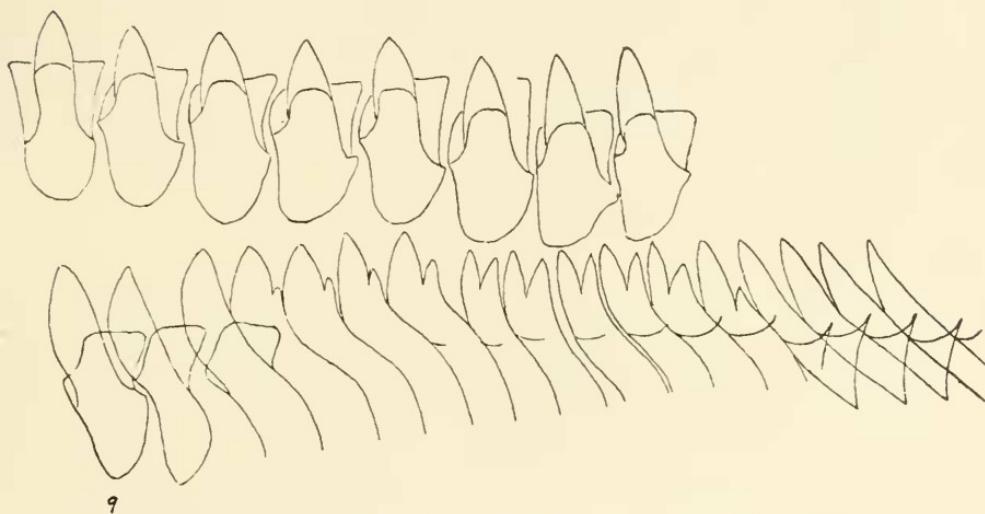


FIG. 9.—*Trochomorpha aukiensis* Clapp. Radula.

ing teeth, one central, eleven unicuspids laterals, ten bicuspid marginals?, twenty-five unicuspids marginals. On the opposite side of the radula from that figured, the 19th and 21st teeth are bicuspid, while the 20th is unicuspid and similar in every way to those from the 22nd on.

#### 28. TROCHOMORPHA BELMOREI (Cox).

*Helix belmorei* Cox, Proc. Zool. soc. London, 1871, p. 647, pl. 52, fig. 12. Solomon Islands.

*Helix (Trochomorpha) belmorei* Tryon, Man. conch., 1887, ser. 2, 3, p. 76, pl. 14, fig. 16.

#### 29. TROCHOMORPHA CONCAVA, sp. nov.

Plate 3, fig. 1-3.

TYPE. M. C. Z. 32,523. Auki, Malaita Id.

Shell large, solid, depressed, widely umbilicate, spire subconcave. Color, above, cinnamon-brown, fading to light buff on the early whorls, below, with a broad chestnut-brown band, sharply defined at the upper edge by the narrow buff colored peripheral flange, the lower portion gradually fading into the light buff of the umbilical region. On approaching the aperture the band narrows rapidly, ending in a sharp point at the peripheral flange a short distance behind the aperture. Finely, irregularly wrinkled with oblique growth-lines, stronger above than below. Just above the peripheral flange are short, sharp, straight, incised lines, at irregular intervals, perpendicular to the growth-lines and therefore extending obliquely backward from the periphery. Just below the periphery similar lines occur, which, however, extend obliquely forward from the periphery. Whorls 6, last not descending in front. Protoconch smooth. Periphery sharply carinate, slightly flanged. Aperture oblique. Peristome but slightly thickened above, thickened but hardly reflexed below, columellar lip, thin, short, oblique. Parietal wall, calloused. Umbilicus contained in the diameter five times.

G. d. 35.3 mm. l. d. 30.6 mm. alt. 13.4 mm.

Aperture g. d. 14.5 mm. l. d. 8 mm.

Umbilicus g. d. 7 mm.

Specimens of this species occur in collections under the name of *T. belmorei* Cox (Proc. Zool. soc. London, 1871, p. 647, pl. 52, fig. 12). A comparison of the figures of the two species will show at once that there is little similarity between them. In *T. belmorei*, the color is darker, the suture less distinct, the base flat, and more coarsely striated than the spire, rather than less, as in *T. concava*. *Trochomorpha belmorei* lacks the dark band on the base, is much smaller, higher spired, and with the peristome sharply angled at the keel.

*Trochomorpha concava* is larger than any other species of the genus previously described from the Solomon Islands. There is a striking similarity in appearance between it and some specimens of *Plectotropis* from the Philippines.

### 30. TROCHOMORPHIA CROUANII var. $\beta$ (Le Guillou).

*Helix crouanii* Le Guillou, Revue zool., 1842, p. 138, var.  $\beta$ . Insulis Salomonis.

*Helix (Trochomorpha) crouanii* Tryon, Man. conch., 1887, ser. 2, 3, p. 90.

### 31. TROCHOMORPHIA CRUSTULUM (Cox).

*Helix crustulum* Cox, Proc. Zool. soc. London, 1873, p. 150. Solomon Islands.  
Tryon, Man. conch., 1887, ser. 2, 3, p. 90.

*Trochomorpha crustulum* Gude, Proc. Mal. soc. London, 1907, 7, p. 235, pl. 31, fig. 14a-c.

Auki, Malaita.

The radula (Fig. 10, M. C. Z. 32,519, slide 1,856) is typically Trochomorphan. The first ten or eleven laterals are unicuspids, a denticle then appearing on the outer base of the cusp, increasing rapidly in size until the teeth are bicuspid. At about the 30th tooth the outer

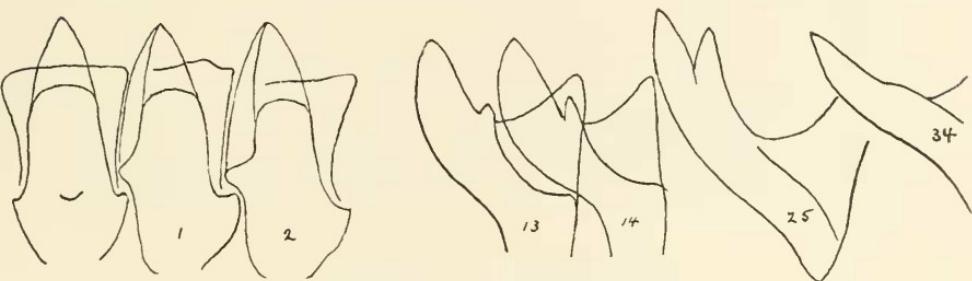


FIG. 10. *Trochomorpha crustulum* (Cox). Radula.

cusp begins to decrease in size, the teeth from the 34th to the outer edge being unicuspids. The formula is 50-1-50.

The reproductive organs (M. C. Z. 32,519, slide 1,857) show little variation from the other species of *Trochomorpha* from the Solomon Islands.

### 32. TROCHOMORPHA DEIOPEIA (Angas).

*Helix (Trochomorpha) deiopeia* Angas, Proc. Zool. soc. London, 1869, p. 46, pl. 2, fig. 4. Marau Sound, Guadaleanar. Tryon, Man. conch., 1887, ser. 2, 3, p. 89, pl. 17, fig. 53, 54.

### 33. TROCHOMORPHA EUDORA (Angas).

*Helix (Trochomorpha) eudora* Angas, Proc. Zool. soc. London, 1869, p. 47, pl. 2, fig. 8. New Georgia, Tryon, Man. conch., 1887, ser. 2, 3, p. 88, pl. 17, fig. 47, 48.

### 34. TROCHOMORPHA EXALTATA (Pfeiffer).

*Helix exaltata* Pfeiffer, Proc. Zool. soc. London, 1885, p. 113. Salomon's Islands.

*Helix cleryi* Reeve (non Recluz), Conch. Icon., 1853, fig. 1026.

*Helix (Trochomorpha) exaltata* Tryon, Man. conch., 1887, ser. 2, 3, p. 76, pl. 14, fig. 19.

From the above descriptions and figures it would appear that this species should be removed to the genus *Dendrotrochus*.

## 35. TROCHOMORPHA FATIGATA (Cox).

*Helix fatigata* Cox, Proc. Zool. soc. London, 1873, p. 149, pl. 16, fig. 42-b.  
Solomon Islands.

*Helix (Trochomorpha) fatigata* Tryon, Man. conch., 1887, ser. 2, 3, p. 76, pl. 14,  
fig. 17, 18.

## 36. TROCHOMORPHA FLAVA, sp. nov.

Plate 3, fig. 4-6.

TYPE. 32,521. Auki, Malaita Id.

Shell, thin, trochiform, umbilicate. Spire, convex; base, flat, somewhat concave near the periphery. Color, cream-buff throughout, semitransparent, shining. Sculpture, consisting of coarse, somewhat regularly spaced, very

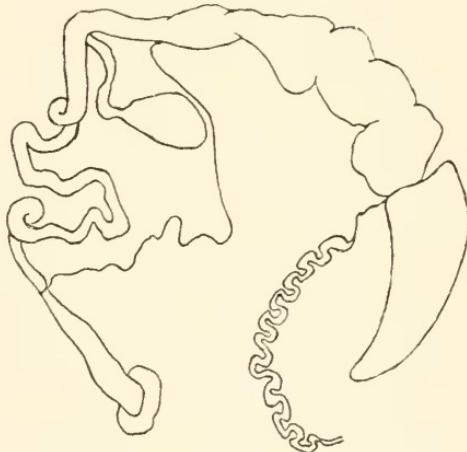


FIG. 11.—*Trochomorpha flava* Clapp. Reproductive organs.

oblique growth-lines, above and below. Whorls 6, slightly convex, the last flattened near the carina, not descending in front. Suture impressed, margined. Periphery acutely carinate. Aperture oblique. Peristome above, thin, sharp, acutely angled at the keel; below, white, slightly reflexed toward the columellar region. Parietal callous hardly visible. Umbilicus, narrow, deep, contained in the diameter of the shell nearly seven times.

G. d. 23.7 mm. l. d. 20.8 mm. alt. 12 mm.

Aperture g. d. 11 mm. l. d. 5.7 mm.

Umbilicus 3.5 mm.

This species does not appear to be closely related to any other from the Solomons. An examination of the animal shows that the reproductive organs (Fig. 11, M. C. Z. 32,522, slide 1,859) are typi-

cally Trochomorphan, the most noticeable difference being an excessively powerful retractor-muscle. The penis is somewhat longer and more twisted than in other species which have been examined. The radula (M. C. Z. 32,522, slide 1,862, 1,863) is similar to that of *T. zenobiella* (Fig. 17) in that minute denticles occur on either side of the central tooth. The inner laterals are also provided on the outer side with a minute denticle, and the laterals are all bifid. The two radulae differ in the number of teeth per row, the formula of *T. flava* being 45-1-45, that of *zenobiella* 34-1-34. These laterals which may be surely classed as bifid, do not appear in *T. flava* until the 13th or 14th tooth from the central, while in *T. zenobiella* they begin at the 9th or 10th tooth.

### 37. TROCHOMORPHA FLORIDENSIS, sp. nov.

TYPE. M. C. Z. 32,516. Florida Id.

Shell thin, semitransparent, shining, depressed, widely umbilicate, the umbilicus contained four times in the diameter. Color, light horn, with five reddish brown bands, the first, narrow, separated from the suture by the white thread-like carina of the previous whorl, the second broader, midway between the suture and periphery, the third, just above the acute, white, peripheral carina, the fourth, an equal distance below the carina, the fifth, but slightly below the fourth, leaving the major portion of the base including the entire umbilical region, light horn colored. Surface above and below with fine oblique growth-lines. Whorls 5, slightly convex, last whorl acutely keeled, the carina dividing the whorl into semiequal halves. Protoconch consisting of  $1\frac{1}{2}$  whorls, pale horn color, with irregular, broken, undulating, transverse, microscopic, furrows and ridges, and numerous fine, microscopic, spiral striae, ending abruptly at the completion of the embryonic whorls. Suture, slightly impressed. Periphery, sharply carinate. Aperture, oblique. Peristome above, hardly thickened, somewhat produced forward midway between the suture and carina, below, thickened, slightly reflexed.

G. d. 17.5 mm. l. d. 15 mm. alt. 6.2 mm.

Aperture g. d. 7.3 mm. l. d. 3.7 mm.

Umbilicus g. d. 4.3 mm.

Florida Id.; Fulakora, Ysabel Id.

This species is similar to *T. xiphias* Pfeiffer, differing in having five, rather than four bands, and in the bands being consistently differently distributed, in the spire being higher, and the last whorl being less convex, above and below. From *T. henschei*, it differs in having a larger umbilicus, and having three bands above and two below the periphery, rather than the reverse, lacking entirely any umbilical band.

## 38. TROCHOMORPHA GODETI Sowerby.

Proc. Zool. soc. London, 1869, p. 578, pl. 56, fig. 10. Guadalcanar (Woodford). Pilsbry, Man. conch., 1893, ser. 2, 8, p. 129, pl. 30, fig. 26-28.

## 39. TROCHOMORPHA HENSCHEI (Pfeiffer).

*Helix henschei* Pfeiffer, Malak. blatt., 1867, 14, p. 197. New Caledonia.

*Trochomorpha henschei* Pilsbry, Man. conch., 1893, ser. 2, 8, p. 130, pl. 20, fig. 28-30. Solomon Islands.

## 40. TROCHOMORPHA JUANITA (Angas).

*Helix (Trochomorpha) juanita* Angas, Proc. Zool. soc. London, 1873, p. 183, pl. 20, fig. 3. Solomon Isles.

*Helix (Trochomorpha) juanita* Tryon, Man. conch., 1887, ser. 2, 3, p. 77, pl. 15, fig. 30.

## 41. TROCHOMORPHA HIDALGOIANA (Crosse).

*Helix hidalgoiana* Crosse, Journ. conch., 1864, 12, p. 283; 1866, 14, p. 56, pl. 1, fig. 2.

*Helix (Videna) hidalgoiana* Tryon, Man. conch., 1887, ser. 2, 3, p. 93, pl. 18, fig. 87, 88. Oceania.

*Helix (Trochomorpha) hidalgoiana* Pilsbry, Man. conch., 1894, ser. 2, 9, p. 337. New Georgia.

## 42. TROCHOMORPHA MANNI, sp. nov.

Plate 3, fig. 7-9.

TYPE. M. C. Z. 32,528. Three Sisters Id.

Shell small, depressed, narrowly umbilicate. Color dark chestnut, fading to straw on the earlier whorls. Sculpture consisting of faint, irregular, microscopic growth-lines above and below. Whorls, 5, separated by a broad white sutural flange, the last, flattened above, convex below, not descending in front. Suture hardly impressed. Periphery, acutely carinate, sharply keeled. Aperture, oblique, not descending in front. Peristome above, flat, thin, sharp, not produced forward, white edged; below, thickened and slightly reflexed without, strongly thickened within; in the vicinity of the periphery, generally stained above and below with chestnut or purple. Parietal wall slightly callous. Umbilicus, deep narrow, contained nearly five times in the entire diameter of the shell.

G. d. 14.7 mm. I. d. 12.8 mm. alt. 5.4 mm.

Aperture g. d. 6 mm. I. d. 3 mm.

Umbilicus g. d. 3 mm.

This species shows some variation in color, there being a tendency in some specimens, for the typical chestnut coloring to fade until the shell is nearly straw colored. In these specimens, faint, ill-defined bands may be seen just above and below the periphery, and also a narrow chestnut colored area extending from the periphery to the suture, just behind the aperture. Evidence of the bands may be seen

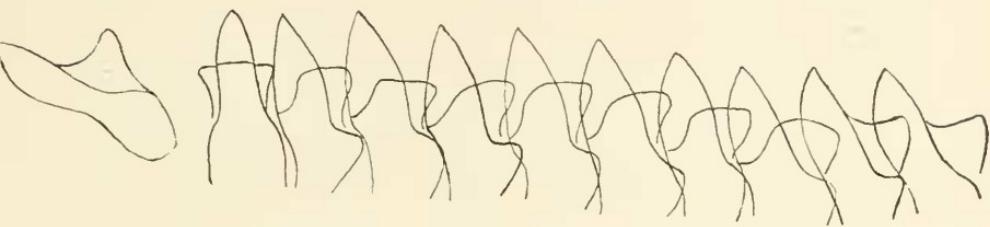


FIG. 12.—*Trochomorpha manni* Clapp. Radula.

in the typically dark specimens, in the purple or chestnut tinted outer lip. The reproductive organs show no variation from the other species examined. The radula is unicuspid throughout (Fig. 12, M. C. Z. 32,529, slide 1,849), the formula being, 115, 45-1-45.

#### 43. TROCHOMORPHA MATURA (Pfeiffer).

*Helix matura* Pfeiffer, Proc. Zool. soc. London, 1855, p. 92, pl. 31, fig. 10. Guadalecanar, Solomon's Islands.

*Helix (Trochomorpha) matura* Tryon, Man. conch., 1887, ser. 2, 3, p. 88, pl. 17, fig. 50.

#### 44. TROCHOMORPHA MELEAGRIS (Pfeiffer).

*Helix meleagris* Pfeiffer, Proc. Zool. soc. London, 1855, p. 107, pl. 32, fig. 8. Wanderer Bay, Guadalecanar, Salomon's Islands. Smith, Proc. Zool. soc. London, 1885, p. 593.

*Helix (Trochomorpha) meleagris* Tryon, Man. conch., 1887, ser. 2, 3, p. 81, pl. 15, fig. 62.

#### 45. TROCHOMORPHA MEMBRANICOSTA (Pfeiffer).

*Helix membranicosta* Pfeiffer, Proc. Zool. soc. London, 1854, p. 55. Salomon's Island. Reeve, Conch. Icon., 1854, fig. 1318.

*Helix (Trochomorpha) membranicosta* Tryon, Man. conch., 1887, ser. 2, 3, p. 76, pl. 14, fig. 15.

## 46. TROCHOMORPHIA MERZIANA (Pfeiffer).

*Helix merziana* Pfeiffer, Proc. Zool. soc. London, 1852, p. 135. Tryon, Man. conch., 1887, ser. 2, 3, p. 89, pl. 18, fig. 55.

*Helix (Videna) merziana* Smith, Proc. Zool. soc. London, 1885, p. 593.

Wai-ai, San Christoval, Bio, Ugi Islands.

Specimens (M. C. Z. 32,510) from Wai-ai appear to be most nearly typical, but differ in having the yellow strigations more numerous. The average size of specimens in this lot is, g. d. 23.6 mm., l. d. 20. mm., alt. 10.6 mm. Specimens from Bio (M. C. Z. 32,512) differ from those from Wai-ai in being smaller, lacking nearly all of the yellow streaks on the upper surface, in being more depressed, with deeper sutures, and not having the thread-like yellow lines separating the whorls. The ultimate whorl is nearly as rounded below as above, the carina

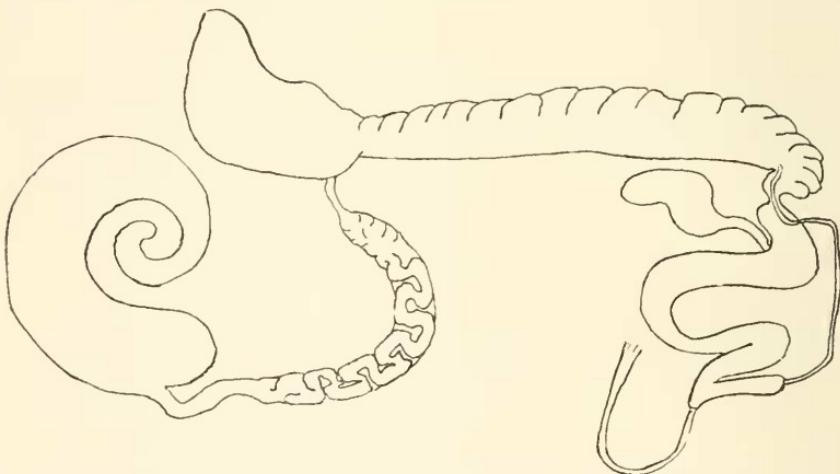


FIG. 13.—*Trochomorpha merziana* (Pfeiffer). Reproductive organs.

dividing it into equal halves. The average size of specimens from Bio Is., G. d. 20.7 mm., l. d. 17.9 mm., alt. 8.1 mm. Specimens from Ugi (M. C. Z. 32,514) differ from those from Wai-ai in much the same manner as do those from Bio. They are generally darker, with the base more rounded and the carina therefore dividing the ultimate whorl into two subequal halves. The base is frequently chestnut with no trace of banding. The width of the aperture from the columellar wall to the periphery is much less than in the specimens from Wai-ai. None of the differences are, however, constant, connecting links occurring in each lot. There is no reason from the material at hand, to be-

lieve that the differences show geographical races, rather than great variation of local colonies.

There is no noticeable difference in the anatomy of specimens from the above localities. The reproductive organs (Fig. 13) of a specimen from Wai-ai (M. C. Z. 32,510) are similar to those of other members of the genus which have been figured (Pilsbry, Man. conch. 1893, ser. 2, 9, pl. 7, 8.) The radula (Fig. 14, M. C. Z. 32,510, slide 1,841), how-

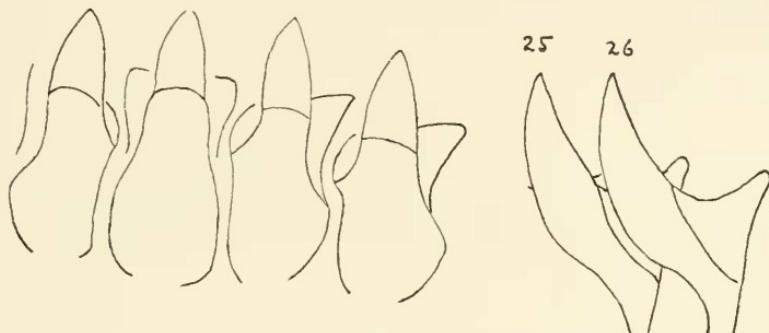


FIG. 14.—*Trochomorpha merziana* (Pfeiffer). Radula.

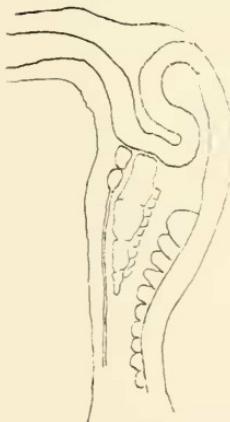


FIG. 15.—*Trochomorpha merziana* (Pfeiffer). Heart and kidney.

ever, while showing no variation in any of the specimens from Wai-ai, Bio, or Ugi, exhibits a very marked difference from that of any other species of *Trochomorpha* previously figured (Pilsbry, *Loc. cit.*, p. 2, pl. 8, fig. 11, 18), in that the marginals are not bifid. The transition from the laterals to the marginals is gradual, the formula being 120  $\times$  50-1-50.

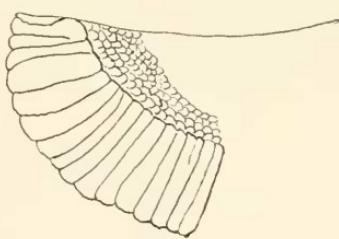


FIG. 16.—*Trochomorpha merziana* (Pfeiffer). Posterior portion of the foot.

#### 47. TROCHOMORPHA PARTUNDA Angas.

Proc. Zool. soc. London, 1867, p. 890, pl. 43, fig. 13-15. Galera or Russell Island. *Helix* (*Trochomorpha*) *partunda* Tryon, Man. conch., 1887, ser. 2, 3, p. 81, pl. 15, fig. 60, 61

## 48. TROCHOMORPHA RENDOVAENSIS, sp. nov.

Plate 3, fig. 10-12.

TYPE. M. C. Z. 36,777. Rendova Id., off New Georgia.

Shell small, solid, translucent, hardly shining, umbilicate. Spire convex, base rounded. Color light buff, with five chestnut bands, the first, narrow, at the suture, the second, equally narrow, midway between the periphery and the suture, the third, very broad, extending above and below the periphery, the fourth, thread-like, hardly separated from the third, the fifth, broad, at the umbilicus. Sculpture consisting of oblique growth-lines above and below. Whorls 5, slightly convex, last not descending. Suture lightly impressed, margined. Periphery sharply carinate. Aperture very oblique. Peristome above, thin, sharp; below, slightly reflexed from the periphery to the umbilicus, the reflexed edge colored by the chestnut bands. Parietal callous very indistinct. Umbilicus contained in the diameter 4.3 times.

G. d. 11.2 mm. l. d. 10.5 mm. alt. 5.7 mm.

Aperture g. d. 4.7 mm. l. d. 3 mm.

Umbilicus 2.6 mm.

This shell is very similar to *T. henschei* as described and figured by Pilsbry (Man. conch., ser. 3, 8, p. 130, pl. 20, fig. 28-30). It differs in being very much smaller and more closely coiled, by having a dark suture and dark, rather than white edged, peripheral keel.

## 51. TROCHOMORPHA RHODA (Angas).

*Helix rhoda* Angas, Proc. Zool. soc. London, 1876, p. 267, pl. 20, fig. 10-12.  
San Christoval.

*Helix (Trochomorpha) rhoda* Tryon, Man. conch., 1887, ser. 2, 3, p. 88, pl. 17,  
fig. 51, 52.

## 49. TROCHOMORPHA RUBIANAENSIS, sp. nov.

TYPE 32,532. Rubiana, New Georgia Id.

Shell solid, semitransparent, moderately umbilicate, the umbilicus contained in the diameter five times. Color, light corneous, with three reddish brown bands, the first, above, midway between the suture and periphery, the second just below the periphery, and the third, midway between the periphery and the umbilical region. Surface, above and below, with fine oblique growth-lines. Whorls, 5, convex above, flattened below, last whorl obtusely keeled. Protoconch, consisting of  $1\frac{1}{2}$  whorls, surface, granular, with no trace of transverse or spiral sculpture. Suture impressed. Periphery, obtusely keeled but not flanged. Aperture oblique. Peristome sinuous;

above, hardly thickened, subreflexed, somewhat produced forward; below, thickened, reflexed, basal lip straight, not oblique, nearly horizontal to the axis; columellar lip encroaching on the umbilical region, nearly parallel to the axis.

G. d. 14 mm. I. d. 12.3 mm. alt. 6.5 mm.

Aperture g. d. 6.3 mm. I. d. 4 mm.

Umbilicus, g. d. 2.8 mm.

This species, belonging to the group to which *henschei*, *xiphias*, *godeti*, and *floridensis* belong, is possibly most nearly like *godeti*. It differs from that species in having three chestnut bands and in being much smaller.

#### 50. TROCHOMORPHA SANCTAEANNAE (Smith).

*Helix (Videna) sanctaeannae* Smith, Proc. Zool. soc. London, 1885, p. 594, pl. 36, fig. 7. Santa Anna.

*Helix (Trochomorpha) sanctaeannae* Tryon, Man. conch., 1887, ser. 2, 89, pl. 18, fig. 56-58.

#### 51. TROCHOMORPHA SCYTODES (Pfeiffer).

*Helix scytodes* Pfeiffer, Proc. Zool. soc. London, 1854, p. 56. Solomon's Islands. Reeve, Conch. Icon., 1854, fig. 1310.

*Helix (Trochomorpha) scytodes* Tryon, Man. conch., 1887, ser. 2, 3, p. 77, pl. 14, fig. 20.

#### 52. TROCHOMORPHA SEBACEA (Pfeiffer).

*Helix sebacea* Pfeiffer, Proc. Zool. soc. London, 1856, p. 383. Admiralty Islands.

*Helix (Discus) cerealis* Cox, Proc. Zool. soc. London, 1873, p. 147, pl. 16, fig. 1. Solomon Islands.

*Helix (Discus) thorpeiiana* Brazier, Proc. Linn. soc. N. S. W., 1883, 8, p. 228. Solomon Islands.

*Helix (Videna) sebacea* Smith, Proc. Zool. soc. London, 1855, p. 593.

*Helix (Trochomorpha) sebacea* Tryon, Man. conch., 1887, ser. 2, 3, p. 81.

#### 53. TROCHOMORPHA SEMICONVEXA (Pfeiffer).

*Helix semiconvexa* Pfeiffer, Proc. Zool. soc. London, 1854, p. 55. Salomon's Islands. Reeve, Conch. Icon., 1854, fig. 1316.

*Helix (Trochomorpha) semiconvexa* Tryon, Man. conch., 1887, ser. 2, 3, p. 88, pl. 17, fig. 49.

#### 54. TROCHOMORPHA SERENA (Cox).

*Helix serena* Cox, Proc. Zool. soc. London, 1873, p. 149. Solomon Islands.

*Helix (Trochomorpha) serena* Tryon, Man. conch., 1887, ser. 2, 3, p. 77.

## 55. TROCHOMORPHA XIPHIAS (Pfeiffer).

*Helix xiphias* Pfeiffer, Proc. Zool. soc. London, 1856, p. 383. Admiralty Islands. Nov. Conch., 1860, 2, p. 149, sp. 242, tab. 38, fig. 6-9. Tryon, Man. conch., 1887, ser. 2, 3, p. 89, pl. 18, fig. 59-61.

Rubiana, New Georgia Id.

The locality given by Pfeiffer and by Tryon, the Admiralty Islands, is incorrect, as is the case with several other species in the Cuming collection labeled from the Admiralty Islands but actually found only in the Solomons.

## 56. TROCHOMORPHA ZENOPIA (Pfeiffer).

*Helix zenobia* Pfeiffer, Proc. Zool. soc. London, 1863, p. 527. New Georgia. *Trochomorpha zenobia* Pilsbry, Man. conch., 1893, ser. 2, 8, p. 131, pl. 42, fig. 14-16.

Wainoni Bay, San Christoval Id.

## 57. TROCHOMORPHA ZENOBIELLA, sp. nov.

Plate 3, fig. 13-15.

TYPE. M. C. Z. 32,531. Rendova, New Georgia.

Shell rather solid, narrowly umbilicate. Color uniformly corneous throughout, with no trace of bands or other markings, translucent, dull. Sculpture consisting of oblique growth-lines of comparatively moderate size, above and below. Whorls  $5\frac{1}{2}$ , not descending in front. Protoconch of  $1\frac{1}{2}$  whorls, smooth, with no trace of microscopic spiral striae. Suture slightly impressed. Periphery sharply earinate, provided with a narrow flange of the same color as the shell. Aperture oblique. Peristome above, hardly produced forward, flat and but slightly thickened; below, sinuous, thickened, and reflexed posteriorly. Parietal wall, callous. Umbilicus contained in the greatest diameter of the shell  $5\frac{1}{2}$  times.

G. d. 15.8 mm. l. d. 14.6 mm. alt. 7 mm.

Aperture g. d. 6.8 mm. l. d. 4. mm.

Umbilicus 2.8 mm.

Moravo Lagoon, New Georgia; Rendova Id. off New Georgia; Kepi, Rubiana Lagoon.

This species, in color, shape, and general appearance, resembles the much larger and heavier *T. zenobia* Pfeiffer. The similarity is superficial, however, but there is no other Trochomorpha from the Solomon Islands with which this species can be easily compared.

The radula (Fig. 17, M. C. Z. 32,530, slide 1,852) consists of 100 rows of teeth with a formula of 34-1-34. The central teeth are provided with a minute denticle on each side of the mesocone. The

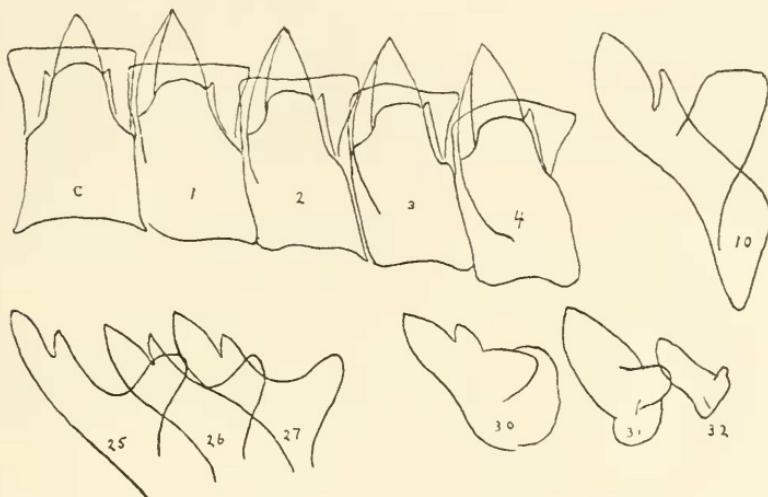


FIG. 17.—*Trochomorpha zenobiella* Clapp. Radula.

laterals are also provided with a similar denticle on the outer side, which, increasing in size, forms the bifid cusp of the transition teeth and of all of the marginals.

### 58. DENDROTROCHUS HELICINOIDES (Hombron and Jacquinot).

*Helix helicinoides* Hombron and Jacquinot, Voy. Pol. Sud. Atlas, t. 7, fig. 34-37. Solomon Id. Pfeiffer, Zeitschr. mal., 1849, p. 77. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 76, pl. 15, fig. 72-74.

*Helix cineracea* Hombron and Jacquinot, Loc. cit., Atlas, t. 7, fig. 30-33. Nouv., Guinée. Pfeiffer, Mon. Helic. viv., 1859, 4, p. 203. Haman Id. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 77, pl. 15, fig. 88, 89, pl. 16, fig. 6, 7. San Christoval, Ysabel and Stephens Islands.

*Helix cleryi* Recluz, Journ. conch., 1851, p. 211, pl. 5, fig. 10. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 76, pl. 15, fig. 81-83, 86, 87. Choiseul Bay, San Christoval. Shortland and Treasury Islands.

*Helix cyrene* Crosse, Journ. conch., 1869, p. 183. Oceania. Journ. conch., 1870, p. 102, pl. 21, f. 2.

*Helix quirosi* Cox, Proc. Zool. soc. London, 1873, p. 147. Pfeiffer, Mon. Helic. viv., 1876, 7, p. 316. Insulis Salomonis.

*Helix zelina* Cox, Proc. Zool. soc. London, 1873, p. 150, pl. 16, fig. 6.

*Helix septentrionalis* Smith, Proc. Zool. soc. London, 1885, p. 593. Choiseul Bay, Shortland Island, Treasury Island.

*Helix meridionalis* Smith, Proc. Zool. soc. London, 1885, p. 593. Santa Anna Island.

*Helix simboana* Smith, Proc. Zool. soc. London, 1885, p. 593. Simbo.

?*Helix subtecta* Pfeiffer.

?*Nanina (Oxytes) subtecta* Tryon, Man. conch., 1886, 2, p. 130.

Smith, 1885, notes the "typical form" from San Christoval and Ugi, the "dwarfed" from Guadalcánar and New Georgia and from San Christoval Rua Suva "white forms with pellucid zone on upper surface."

Specimens from Labeti, Rubiana Lagoon (M. C. Z. 32,473) appear to be typical *D. helicinoides*, unbanded, pale horn color.

G. d. 15.8 mm. l. d. 13.4 mm. alt. 10.8 mm.

Dr. Mann's collection contains the following variations:—

1. Similar to the above but showing narrow faint ill-defined chestnut bands above and below the suture. Reflexed lip stained with chestnut and with a chestnut blotch behind.

G. d. 16 mm. l. d. 13.7 mm. alt. 10.6 mm.

Rubiana Id., New Georgia, (M. C. Z. 36,782).

2. Smaller, higher spired, and with less convex whorls, otherwise similar to 36,782.

G. d. 14 mm. l. d. 12 mm. alt. 10 mm.

Rendova, Rubiana Id. (M. C. Z. 32,467).

3. Whorls but slightly convex. Chestnut banding lacking or ill-defined, the chestnut blotch behind the slightly reflected lip, above and below, persisting.

G. d. 14 mm. l. d. 11.6 mm. alt. 9 mm.

Three Sisters Id. (M. C. Z. 32,468).

4. Similar to the specimens from Three Sisters Id., differing in being more solid, the lip more broadly expanded and thickened. Fewer specimens show traces of banding, those which do, having the bands narrower, leaving a wider horn colored area at the suture.

G. d. 14.6 mm. l. d. 12.6 mm. alt. 10.6 mm.

Yandina, Russell Id. (M. C. Z. 36,783, 36,784).

5. In a large series the characters are shown to be very uniform and are those of typical *cleryi* Recluz, with a broad chestnut band above and a narrower one below the periphery, the upper leaving a light colored area at the suture and at the peripheral keel, the lower, narrower, situated just below the periphery.

G. d. 16.6 mm. l. d. 14.5 mm. alt. 11.7 mm.

Wai-ai, San Christoval Id. (M. C. Z. 32,470).

6. Identical with specimens from Wai-ai, and likewise showing very little variation.

Waimoni Bay, San Christoval Id. (M. C. Z. 32,497).

7. In one lot from Ugi Id. (M. C. Z. 32,463), the specimens differ from those from San Christoval in being uniformly larger and less sharply carinate, the base being more convex and the basal lip thicker.

G. d. 19 mm. I. d. 15.4 mm. alt. 14 mm.

8. In another (M. C. Z. 32,474) all of the specimens are albinistic, the brown bands of typical *cleryi* being replaced by transparent white, the light sutural and peripheral bands by opaque white. *H. cyrene* Crosse appears to have been described from a similar shell. Excepting in color the two forms from Ugi are identical.

G. d. 18.9 mm. I. d. 15.5 mm. alt. 13.7 mm.

9. The specimens from Bio are somewhat similar to the banded

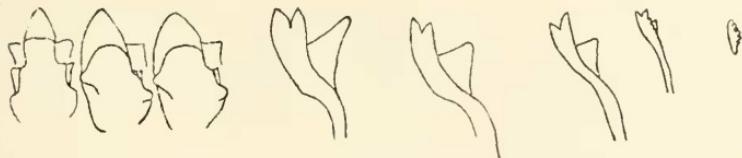


FIG. 18.—*Dendrotrochus helicinoides* (Hombron & Jacquinot). Radula.

form from Ugi, differing in being slightly less carinate, smaller, and with the white band at the suture narrower.

G. d. 16.3 mm. I. d. 13.6 mm. alt. 12.8 mm.

Bio Id. (M. C. Z. 32,472).

10. Similar to specimens from Wai-ai, but are smaller, more solid, and possess a more broadly flattened and thickened basal lip.

G. d. 15.4 mm. I. d. 13.5 mm. alt. 10.7 mm.

Fulakora, Isabel Id. (M. C. Z. 32,466).

It is impossible with the material at hand to consider the above as more than geographical races of the same species. Nevertheless the individuality of each colony is remarkable and leads to the suspicion that every island is developing or has developed one or more species of *Dendrotrochus*.

A careful examination of the anatomy of the animal from many of the above localities, fails to reveal any noticeable differences. The foot is as described by Hedley (Rec. Austr. mus., 1895, p. 91, pl. 25). The reproductive organs are also similar to those described by Hedley, several specimens containing one or more large spermatophores, the spermatheca being swollen almost to the bursting point.

The radula (Fig. 18, 19, M. C. Z. 32,473, slide 1,864) is similar to



FIG. 19.—*Dendrotrichus helicinoides* (Hombron & Jacquinot). Marginal tooth of radula.

Hedley's description having a formula of 160-1-160. The ectocone increases rapidly until equal in size to the mesocone, becoming at about the 15th tooth the outer cusp of a bifid marginal. This outer cusp continues to increase in size and is noticeably the larger in all but the outermost marginals. It is also interesting to note that beginning at about the 15th tooth, that portion of the outer edge of the tooth which is directly over the projection of the basal plate becomes minutely serrate. This serration becomes stronger toward the outer marginals, the outermost having even the outer cusp more or less denticulate.

#### ENDODONTIDAE.

##### 59. ENDODONTA (CHAROPA) SOLOMONENSIS, sp. nov.

TYPE. M. C. Z. 36,838. Ugi Id.

Shell, (Fig. 20-24) minute, subdiscoidal, umbilicate; postembryonic whorls closely radiately ribbed with about fourteen riblets per millimeter, interstices with a few microscopic growth-lines but no spiral striae. Color, uniformly reddish brown. Suture, deeply impressed. Spire, very slightly elevated. Whorls,  $4\frac{1}{2}$ . Protoconch, light yellow, smooth, shining, whorls  $1\frac{1}{2}$ . Periphery, rounded. Aperture, oblique, lunate, toothless. Peristome thin, sharp, margins converging. Columella lip, not reflexed, parietal wall having a thin transparent glaze, the riblets having been worn away. Umbilicus, deep, less than  $\frac{1}{4}$  of the greater diameter.

G. d. 2.8 mm. l. d. 2.2 mm. alt. 1.3 mm.

No species of this genus have been previously recorded from the Solomon Islands. *E. solomonensis* is quite similar to *E. anguiculus* Reeve, Conch. Icon., 7, fig. 802) from New Zealand, as described and figured by Suter (Manual of the New Zealand Mollusca, 1913, p. 701, pl. 27, fig. 16, a, b).

#### HELICIDAE.

##### 60. CAMAENA GROSSULARIA (Pfeiffer).

*Helix grossularia* Pfeiffer, Proc. Zool. soc. London, 1861, p. 192. New Georgia.  
*Helix (Camaena) grossularia* Paetel, Cat. conchyl. sammlung, 1891, p. 137.

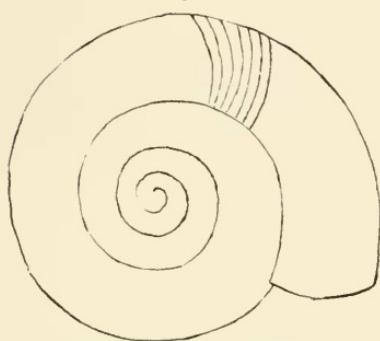


FIG. 20.—*Endodonta (Charopa) solomonensis* Clapp.

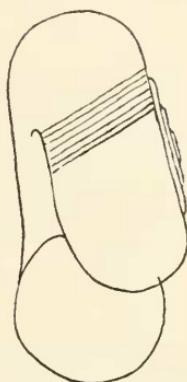


FIG. 21.—*Endodonta (Charopa) solomonensis* Clapp.

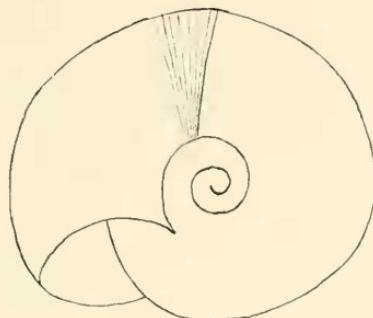


FIG. 22.—*Endodonta (Charopa) solomonensis* Clapp.

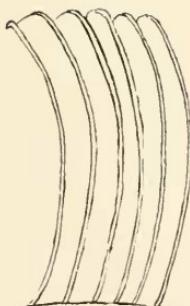


FIG. 23.—*Endodonta (Charopa) solomonensis* Clapp. Sculpture of shell.

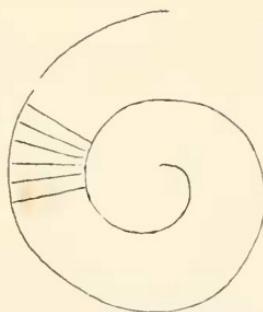


FIG. 24.—*Endodonta (Charopa) solomonensis* Clapp. Protoconch.

## 61. CHLORITIS (EUSTOMOPSIS) EUSTOMA (Pfeiffer).

*Helix eustoma* Pfeiffer, Proc. Zool. soc. London, 1856, p. 383. Admiralty Islands. Pilsbry, Man. conch., 1890, ser. 2, 6, p. 252, pl. 50, fig. 44-46, pl. 52, fig. 86, 87. Ugi, Faro, New Georgia, Ysabel.

*Chloritis (Eustomopsis) eustoma* Gude, Proc. Mal. soc. London, 1906, 7, p. 43, 112. New Georgia.

*Helix erinaceus* Pfeiffer, Proc. Zool. soc. London, 1861, pl. 192. New Georgia.

*Helix (Chloritis) erinaceus* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 251, pl. 52, f. 88, 89. New Ireland, New Georgia.

Fulakora, Isabel Id. Rendova Id. Moravo Lagoon, New Georgia Id. Auki, Malaita Id. Paiua, Ugi Id. Wai-ai, San Christoval Id.

There is considerable variation in the specimens from the above

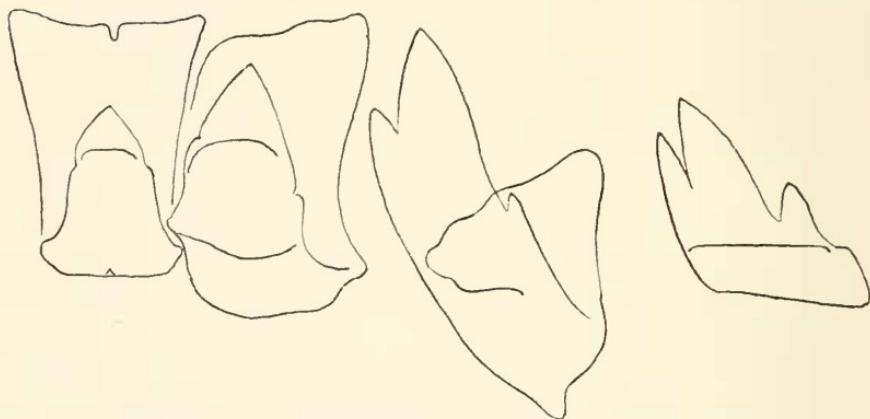


FIG. 25.—*Chloritis (Eustomopsis) eustoma* (Pfeiffer). Radula.

localities, but no constant differences can be seen. Specimens from Auki are generally larger than those from Ugi and Fulakora, with the right and left sides of the aperture more nearly parallel. The aperture is wider from the periphery to the parietal wall, and the last whorl much wider in proportion to the diameter of the shell. These characters, however, do not hold throughout the lot of 100 specimens from Auki.

The jaw is very similar to that of *C. leei* Cox, as figured by Pilsbry (Man. conch., 1894, ser. 2, 9, p. 119, pl. 32, fig. 43).

The radula (Fig. 25, M. C. Z. 32,501 A, slide 1,897) has a formula of 50-1-50. Central tooth with a short mesocone extending over but little more than half of the base. Otherwise the teeth are quite similar

to those of *C. argillacea* Fer. (Pilsbry, Man. conch., 1894, ser. 2, 9, p. 121, pl. 20, fig. 6).

The reproductive organs (Fig. 26, M. C. Z. 32,501, slide 1,901; Fig. 27, M. C. Z. 32,501, slide 1,899 juv.) lack any accessory organs on the female side, and are remarkable for the comparatively short, stout spermatheca-duct, and the absence of a flagellum. The epiphallus is short, merging into the vas deferens without any constriction or dilation. The walls of the penis-cavity are strongly corrugated, but there is no well-defined papilla.

The sex organs of this species are so remarkably different from those of *leei* Cox, and *dinodcomorpha* Tapparone-Caneffri that it seems improbable that those species should be grouped in the same section of *Chloritis ss.*

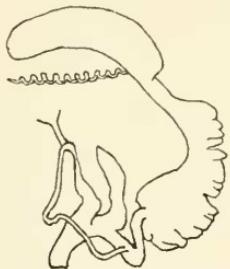


FIG. 26.—*Chloritis (Eustomopsis) eustoma* (Pfeiffer). Reproductive organs.

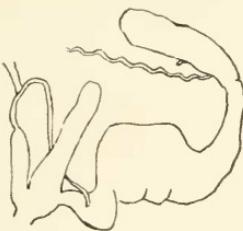


FIG. 27.—*Chloritis (Eustomopsis) eustoma* (Pfeiffer). Reproductive organs, juv.

#### 62. CHLORITIS (EUSTOMOPSIS) MOELLENDORFFI (Ancey).

*Chloritis moellendorffi* Ancey, Proc. Linn. soc. N. S. W., 1897, p. 775, pl. 36, fig. 7. Tuom, German New Guinea.

*Chloritis (Eustomopsis) moellendorffi* Gude, Proc. Mal. soc. London, 1906, 7, p. 44, pl. 4, fig. 4-4c. Rubiana, New Georgia.

#### 63. CHLORITIS (EUSTOMOPSIS) CONOMPHALA (Gude).

*Chloritis conomphala* Gude, Proc. Mal. soc. London, 1906, p. 229, pl. 21, fig. 1a-d. Rubiana.

#### 64. CHLORITIS (SULCOBASIS) BOUGAINVILLEI (Pfeiffer).

*Helix bougainvillei* Pfeiffer, Proc. Zool. soc. London, 1860, p. 133, pl. 50, fig. 7. Bougainville Island.

*Helix angasiana* Newcomb, Ann. Lyc. nat. hist. N. Y., 1860, 7, p. 283. Bougainville Island.

*Helix (Chloritis) bougainvillei* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 128, pl. 22, fig. 55, 56.

*Chloritis (Sulcobasis) bougainvillei* Gude, Proc. Mal. soc. London, 1906, 7, p. 114. Dall, Field mus. nat. hist., 1910, 7, p. 216. Solomon Islands.

#### 65. CHLORITIS (SULCOBASIS) CAMERATUS Dall.

Field mus. nat. hist. Zool., 1910, 7, p. 216, 220, pl. 4, fig. 2-4. Bougainville Island.

#### 66. CHLORITIS (SULCOBASIS) ISIS (Pfeiffer).

*Helix isis* Pfeiffer, Proc. Zool. soc. London, 1860, p. 133, pl. 50, fig. 8. Admiralty Islands.

*Helix (Chloritis) isis* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 256, pl. 32, fig. 46-48; pl. 49, fig. 16, 17.

*Chloritis (Sulcobasis) isis* Oberwimmer, Denks. K. acad. wiss., 1909, p. 516. pl. 1, fig. 2a-c. Bougainville.

#### 67. CHLORITIS (?) MENDANAЕ (Cox).

*Helix mendanae* Cox, Proc. Zool. soc. London, 1873, p. 148. Solomon Islands.

*Helix (Chloritis) mendanae* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 225.

#### 68. CHLORITIS (SULCOBASIS) QUERCINA (Pfeiffer).

*Helix quercina* Pfeiffer, Proc. Zool. soc. London, 1856, p. 382. Admiralty Islands.

*Helix (Chloritis) quercina* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 257, pl. 37, fig. 48, 49. Shortland, Faro, Isabel Islands (Admiralty Islands?).

*Chloritis quercina* Gude, Proc. Mal. soc. London, 1906, p. 228. Dall, Field mus. nat. hist. Zool., 1910, 7, p. 216. Bougainville Island.

#### 69. CHLORITIS QUERCINA HOMBRONI (Pfeiffer).

*Helix hombroni* Pfeiffer, Proc. Zool. soc. London, 1856, p. 382. Admiralty Islands.

*Helix quercina hombroni* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 258, pl. 37, fig. 45-47.

*Helix janelli* Hombron and Jacquinot (*non Guillou*), Voy. au Pol Sud, 1854, p. 8, pl. 14, fig. 15, 16.

*Chloritis quercina hombroni* Gude, Proc. Mal. soc. London, 1906, 7, p. 114, 229. Solomon Islands. Florida Islands.

Fulakora, Isabel.

All of the twenty-six specimens received are of the depressed form known as *hombronii*. In spite of the fact that the specimens which were preserved in alcohol were all immature, an examination of the animal disclosed some interesting features. The jaw is similar to that of *Chloritis eustoma*. The radula (Fig. 28, M. C. Z. 32,505, slide 1,907) with a formula of 50-1-50, is also almost identical with that of *C.*

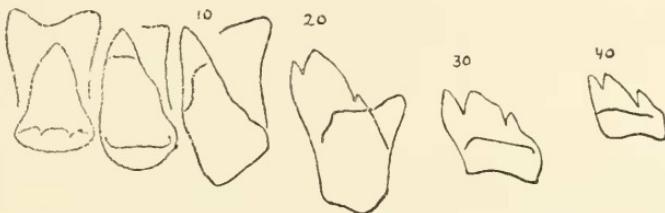


FIG. 28.—*Chloritis quercina hombronii* (Pfeiffer). Radula.

*eustoma*. The reproductive organs (Fig. 29, M. C. Z. 32,505, slide 1,912) are quite similar to those of *C. porteri* (Pilsbry, *Loc. cit.*, 9, pl. 28, fig. 1.) The spermatheca-duct is very long. Penis-cavity containing a papilla. Epiphallus quite long, bearing the penis-retractor and ending in a flagellum. The flagellum is one of the last organs to appear on the male side and increases rapidly in length when the animal approaches sexual maturity. The specimen figured had not reached maturity and the flagellum will probably be found to be larger in mature specimens.

It is very remarkable that the reproductive organs of this species should prove to be so very different from those of *C. eustoma*, and altogether similar to those of other species of *Chloritis* with which *eustoma* is generally grouped. It is quite evident that in spite of the similarity of the jaw and teeth, *eustoma* does not belong to typical *Chloritis*.

#### 70. PAPUINA CHANCEI (Cox).

*Helix chancei* Cox, Proc. Zool. soc. London, 1870, p. 171, pl. 16, fig. 5. Ysabel Island.

*Helix (Papuina) chancei* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 5, pl. 14, fig. 70.

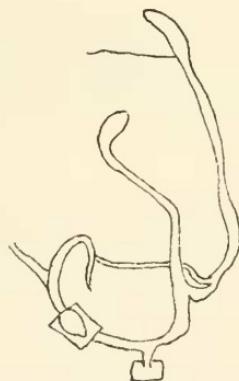


FIG. 29.—*Chloritis quercina hombronii* (Pfeiffer). Reproductive organs.

*Helix (Papuina) amphizona* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 5, pl. 8, fig. 52-54. Solomon Islands.?

Dr. Pilsbry states (Man. conch., 1892, ser. 2, 8, p. 288) that the locality Ysabel Island is incorrect and that the species should be recorded from New Ireland and New Britain.

#### 71. PAPUINA CHANCEI VAR. RECHINGERI Oberwimmer.

Densks. K. akad. wiss., 1909, p. 515, pl. 1, fig. 1a-e. Buin, Bougainville.

#### 72. PAPUINA HARGREAVESI (Angas).

*Helix (Geotrochus) hargreavesi* Angas, Proc. Zool. soc. London, 1869, p. 625, pl. 48, fig. 2. Bougainville and Shortland's Islands. Smith, Proc. Zool. soc. London, 1885, p. 591. Faro Island, also between Bougainville and Choiseul Islands.

*Helix (Papuina) hargreavesi* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 9, pl. 4, fig. 72-74.

#### 73. PAPUINA GAMELIA (Angas).

*Geotrochus gamelia* Angas, Proc. Zool. soc. London, 1867, p. 888, pl. 42, fig. 1-3. St. Stephen Island and Ysabel Island.

*Helix (Papuina) gamelia* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 10, pl. 3, fig. 44-47. Shortland, Treasury Islands.

#### 74. PAPUINA BOIVINI (Petit).

*Helix boivini* Petit, Rev. zool., 1841, p. 184. Isles Salomon.

*Helix (Papuina) boivini* v. Martens, Monatsb. K. Preuss. akad. wiss. Berlin, 1877, p. 276, pl. 2, fig. 11-13.

*Helix boivini* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 6, pl. 6, fig. 13-16, 19, 20. Bougainville.

*Helix subrepta* Hombron and Jacquinot, Voy. au Pol Sud, 1854, 5, p. 5, pl. 4, f. 1-6. Isles Salomon.

Several hundred specimens from Fulakora, Isabel Id., M. C. Z. 32,483, show very slight variation, all having three dark chestnut bands; the first, narrow, just below the suture; the second, broader, above the periphery; the third, below the periphery, varying in width and frequently covering the entire base. Spire, two banded. The mantle-edge is stained with chestnut blotches directly beneath the chestnut bands.

The radula (Fig. 30, M. C. Z. 32,484, slide 1,887) is of the v-shaped type (Pilsbry, Man. conch., 1894, ser. 2, p. 137, pl. 37, fig. 9-10)

differing from the figure of *P. vexillaris* in having the entocone larger, the ectocone appearing at the 5th or 6th lateral and rapidly increasing in size until nearly equal to the entocone. In the specimens examined,

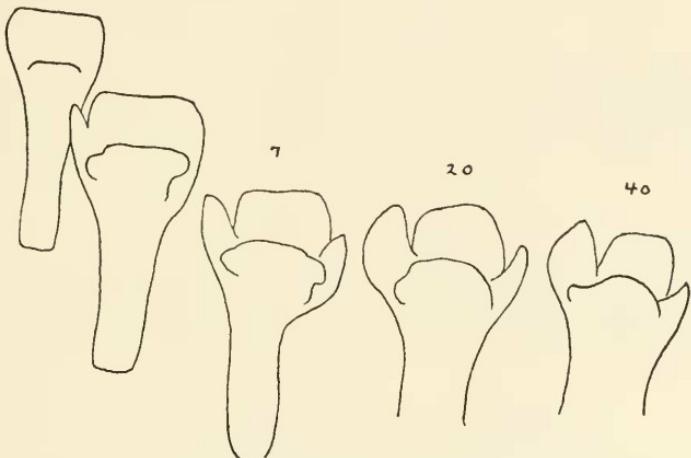


FIG. 30.—*Papuina boivini* (Petit). Radula.

no trace of a notch in the cutting edge of the central tooth, similar to that figured by Pfeiffer, (v. Martens, *Loc. cit.*) can be seen.

The reproductive organs (Fig. 31, M. C. Z. 32,484) differ from other species of *Papuina* which have been figured, in the exceedingly large and long spermatheca-duct; small, short, penis; slender epiphallus, with large retractor-muscle, and large vas defrens. There is no trace of a flagellum. *Helix colorata* Mousson (Land u. süss-wasser mollusken von Java, 1849) which has been considered a synonym of this species is not related to it.

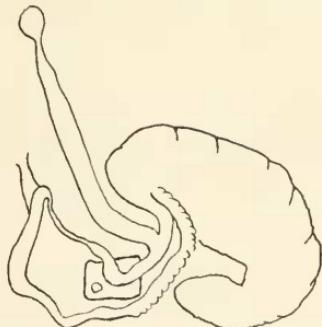


FIG. 31.—*Papuina boivini* (Petit). Reproductive organs.

#### 75. *PAPUINA AMBROSIA* (Angas).

*Geotrochus ambrosia* Angas, Proc. Zool. soc. London, 1867, p. 889, pl. 43, fig. 9, 10. Galera or Russell Island.

*Helix ambrosia* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 7, pl. 4, fig. 75-77.  
Ysabel Island.

Florida Id. New Georgia.

#### 76. PAPUINA MALANTENSIS (Angas).

*Helix malantensis* Angas, Proc. Zool. soc. London, 1876, p. 488, pl. 47, fig. 1-3.  
Malanta Islands.

*Helix (Papuina) malantensis* Pilsbry, Man. conch., 1891, ser. 2, 7, pl. 16, fig. 17, 21, 22.

#### 77. PAPUINA PHILOMELA (Angas).

*Helix philomela* Angas, Proc. Zool. soc. London, 1872, p. 610, pl. 42, fig. 2, 3.  
Ysabel Island. Cox, Proc. Zool. soc. London, 1873, p. 566. Louisiade  
and the Solomon Islands.

*Helix (Papuina) philomela* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 8, pl. 4,  
fig. 66, 67.

#### 78. PAPUINA GUADALCANARENSIS (Cox).

*Helix guadalcanarensis* Cox, Proc. Zool. soc. London, 1871, p. 645, pl. 52, fig. 8.  
Guadaleanar Island.

*Helix (Papuina) guadalcanarensis* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 9,  
pl. 4, fig. 80, 81, pl. 16, fig. 23, 24.

#### 79. PAPUINA BRODIEI (Brazier).

*Helix (Geotrochus) brodiei* Brazier, Proc. Zool. soc. London, 1872, p. 20, pl. 4,  
fig. 6. Choiseul Island.

*Helix (Papuina) brodiei* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 10, pl. 16, fig. 9.

#### 80. PAPUINA DAMPIERI (Angas).

*Helix (Geotrochus) dampieri* Angas, Proc. Zool. soc. London, 1869, p. 47, pl. 2,  
fig. 6. Louisiade archipelago. Smith, Proc. Zool. soc. London, 1885,  
p. 592, pl. 16, fig. 5. Choiseul Bay, Bougainville Straits.

*Helix (Papuina) dampieri* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 11, pl. 5,  
fig. 88, pl. 16, fig. 18.

*Papuina dampieri* Smith, Ann. mag. nat. hist., 1905, ser. 7, 16, p. 196.

#### 81. PAPUINA WALLERI (Brazier).

*Helix brenchleyi* Angas (non Brazier), Proc. Zool. soc. London, 1878, p. 861, pl.  
54, fig. 7.

*Helix (Papuina) walleri* Brazier, Proc. Linn. soc. N. S. W., 1883, 8, p. 228.  
Ysabel Island. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 12, pl. 6, fig. 11, 12.

## 82. PAPUINA ALFREDI (Cox).

*Helix alfredi* Cox, Proc. Zool. soc. London, 1871, p. 323, pl. 34, fig. 1, 1a. Solomon Islands.

*Helix (Papuina) alfredi* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 12, pl. 6, fig. 7, 8.

## 83. PAPUINA MACFARLANEI (Cox).

*Helix (Geotrochus) macfarlanei* Cox, Proc. Zool. soc. London, 1873, p. 567. Solomon Islands.

*Helix (Papuina) macfarlanei* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 13.

## 84. PAPUINA COXIANA (Angas).

*Geotrochus coxianus* Angas, Proc. Zool. soc. London, 1867, p. 889, pl. 43, fig. 7, 8. Ysabel Id.

*Helix (Papuina) coxianus* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 13, pl. 3, fig. 36, 37.

## 85. PAPUINA XANTHOCHILA (Pfeiffer).

*Helix xanthochila* Pfeiffer, Proc. Zool. soc. London, 1861, p. 192. Salomon Islands.

*Helix (Papuina) xanthochila* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 15, pl. 9, fig. 67, 68.

*Papuina xanthochila* Oberwimmer, Denks. K. akad. wissen., 1909, p. 515. Bougainville.

## 86. PAPUINA LILIMUM Fulton.

Journ. mal., 1905, 12, p. 22, pl. 6, fig. 4. Solomon Islands. Smith, Ann. mag. nat. hist., 1905, ser. 7, 16, p. 196. Choiseul Island.

*Helix (Geotrochus) xanthochila* var. Cox, Proc. Zool. soc. London, 1873, p. 567, pl. 9, fig. 69.

*Helix (Papuina) xanthochila* var. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 15, pl. 9, fig. 69.

## 87. PAPUINA MISER (Cox).

*Helix (Geotrochus) miser* Cox, Proc. Zool. soc. London, 1873, p. 146. Solomon Islands.

*Helix miser* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 20.

*Helix beatrix* Angas, Proc. Zool. soc. London, 1876, p. 265, pl. 20, fig. 1-5.

*Helix (Papuina) beatrix* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 15, pl. 14, f. 59-63.

Moravo Lagoon, New Georgia. Florida Id.

## 88. PAPUINA CHIOSEULENSIS (Brazier).

*Helix (Geotrochus) choiseulensis* Brazier, Proc. Zool. soc. London, 1872, p. 21, pl. 4, fig. 7. Choiseul Island.

*Helix (Papuina) choiseulensis* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 16, pl. 10, fig. 90.

## 89. PAPUINA SPLENDESCENS (Cox).

*Helix splendescens* Cox, Proc. Zool. soc. London, 1865, p. 696. Solomon Islands.

*Helix (Geotrochus) brenchleyi* Brazier, Proc. Linn. soc. N. S. W., 1875, 1, p. 3. Maru Sound or Curacao Harbour, Guadalcanar Island.

## 90. PAPUINA MENDANA (Angas).

*Geotrochus mendana* Angas, Proc. Zool. soc. London, 1867, p. 889, pl. 43, fig. 11, 12. Ysabel Island.

*Helix (Papuina) mendana* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 17, pl. 8, fig. 55, 56. Bougainville Id., Shortland Id., Stephen's Id., (and Ysabel Id.?).

## 91. PAPUINA WEIGMANNI (Martens).

*Helix (Geotrochus) weigmanni* Martens, Conch. mitth., 1894, 3, p. 10.

## 92. PAPUINA META (Pfeiffer).

*Helix meta* Pfeiffer, Proc. Zool. soc. London, 1856, p. 381, pl. 26, fig. 5 (*non* fig. 4). Admiralty Islands.

*Helix (Papuina) meta* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 17, pl. 9, fig. 59–61, 63, 70. Ysabel and Bougainville.

*Helix (Geotrochus) deidamia* Angas, Proc. Zool. soc. London, 1869, p. 625, pl. 48, fig. 3. Ysabel Island.

## 93. PAPUINA META VAR. ACMELLA (Pfeiffer).

*Helix acmella* Pfeiffer, Proc. Zool. soc. London, 1860, p. 135, pl. 50, fig. 4. Admiralty Islands.

*Helix (Papuina) meta var. acmella* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 18, pl. 9, fig. 64–66, 62. Bougainville, Ysabel, Faro, and Florida Islands.

Dall (Field mus. nat. hist. Zool., 1910, 7, p. 215) lists *Papuina meta* var. *bicolor* Pilsbry from Bougainville Island.

94. *PAPUINA FULAKORENSIS*, sp. nov.

TYPE. M. C. Z. 32,490. Fulakora, Isabel Id.

Shell smooth, thin, semitransparent, dull above, slightly shining below, elevated trochiform, narrowly obliquely umbilicate. Spire conical. Color varying from buff to chocolate, unbanded, or with from one to three narrow, opaque, yellow bands, one slightly below the suture, one just above, another just below the peripheral carina. The bands when seen through the aperture are opaque white. Lip white, deep rose, or purple. Whorls 6, the last carinate, flattened below, descending in front but very slightly, if at all. Outline of the spire straight. Apex smooth, light buff or purple. Aperture oblique, lip strongly expanded, slightly reflexed. Columella broadly dilated, nearly perpendicular. Parietal callous very thin.

G. d. 22.5 mm. l. d. 20 mm. alt. 28.5 mm.

This species belongs to the group of *P. meta*, differing by being less solid, with the surface dull rather than shining, in having the last

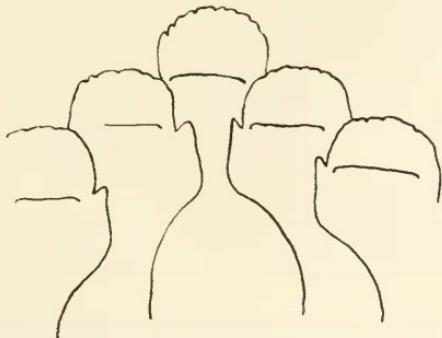


FIG. 32.—*Papuina fulakorensis* Clapp. Radula.

whorl more sharply carinated, and the base flat. The peristome is more broadly expanded and lacks the sinuous curve found in *P. meta*. The characteristic snow-white band of *P. meta* is adjacent to the suture while in *P. fulakorensis* there is a narrow space between the upper band and the suture. In *fulakorensis* the back of the lip is unstained. From *Papuina beatrix* it may be distinguished by its broad flat base and broadly expanded lip.

The radula (Fig. 32, M. C. Z. 32,491, slide 1,885) is of the v-shaped type, having about 100 rows of teeth with a formula of 110-1-110. There is no ectocone on the outer laterals as in *rexillaris* and *boivini*. The irregularly notched edge of the mesocone is present in those teeth not yet used for feeding.

## 95. PAPUINA PLAGIOSTOMA (Pfeiffer).

*Helix plagiostoma* Pfeiffer, Proc. Zool. soc. London, 1856, p. 381. Admiralty Islands.

*Helix (Papuina) plagiostoma* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 19, pl. 10, fig. 88, 89. Solomon Islands.

## 96. PAPUINA GUPPYI (Smith).

*Helix (Geotrochus) guppi* Smith, Proc. Zool. soc. London, 1885, p. 591, pl. 36, fig. 4. Faro Island, Bougainville Straits.

*Helix (Papuina) guppyi* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 19, pl. 10, fig. 95.

## 97. PAPUINA ADONIS (Angas).

*Helix (Geotrochus) adonis* Angas, Proc. Zool. soc. London, 1869, p. 624, pl. 48, fig. 4. Bougainville Island.

*Helix metula* Crosse, Journ. conch., 1870, p. 248.

*Helix (Papuina) adonis* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 20, pl. 10, fig. 86.

*Papuina adonis* Dall, Field. mus. nat. hist. Zool., 1910, 7, p. 215.

## 98. PAPUINA MENDOZA (Brazier).

*Helix (Geotrochus) mendoza* Brazier, Proc. Zool. soc. London, 1872, p. 21, pl. 4, fig. 8. Choiseul Island.

*Helix (Papuina) mendoza* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 21, pl. 10, fig. 8.

## 99. PAPUINA HERMIONE (Angas).

*Helix (Geotrochus) hermione* Angas, Proc. Zool. soc. London, 1869, p. 625, pl. 48, fig. 5. Bougainville Island.

*Helix biocheana* Crosse, Journ. conch., 1870, p. 249.

*Helix (Papuina) hermione* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 21, pl. 9, fig. 73, 74.

## 100. PAPUINA BLANDA (Cox).

*Helix blanda* Cox, Proc. Zool. soc. London, 1873, p. 147. Solomon Islands.

*Helix (Papuina) blanda* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 21.

## 101. PAPUINA MIGRATORIA (Pfeiffer).

*Helix migratoria* Pfeiffer, Proc. Zool. soc. London, 1855, p. 108, pl. 32, fig. 3. Wanderer Bay, Guadalcanar.

*Helix (Geotrochus) leucophaea* Cox, Proc. Zool. soc. London, 1872, p. 20, pl. 4, fig. 5. Guadalecanar, San Christoval, and other islands of the Solomon Group.

*Helix (Papuina) migratoria* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 22, pl. 6, fig. 99, pl. 17, fig. 31, 32.

#### 102. PAPUINA VEXILLARIS (Pfeiffer).

*Helix vexillaris* Pfeiffer, Proc. Zool. soc. London, 1855, p. 113. Haman Island.

*Helix phthisica* Pfeiffer, Proc. Zool. soc. London, 1856, p. 383. Admiralty Islands.

*Helix (Papuina) vexillaris* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 46, pl. 14, fig. 4, 65-67, pl. 16, fig. 25, 26. New Georgia.

#### 103. PAPUINA GABERTI (Lesson).

*Helix (Pileolus) gabertii* Lesson, Voy. Coquille. Zool., 1830, 2, p. 314. Nouvelle Guinee.

*Helix trochus* Quoy and Gaimard, Voy. Astrolabe, 1852, 2, p. 100, pl. 8, fig. 5-7. New Ireland.

*Helix trochoidea* Deshayes (*non Poiret*), Lamarck's Anim. sans vert., 1838, 8, p. 122.

*Helix (Papuina) gaberti* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 48, pl. 7, fig. 35, 38, 39. New Ireland, New Guinea, Solomon Islands.

Dr. Pilsbry considers the Solomon Islands a doubtful locality for this species.

#### 104. PAPUINA LOMBEI (Pfeiffer).

*Helix lombei* Pfeiffer, Proc. Zool. soc. London, 1856, p. 382, pl. 36, fig. 6, 7. Admiralty Islands.

*Helix lambei* Pfeiffer, Malak blatt., 1857, p. 239.

*Helix (Papuina) lambei* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 48, pl. 7, fig. 21-26. New Georgia, Solomon Islands.

#### 105. PAPUINA FLEXILABRIS (Pfeiffer).

*Helix flexilabris* Pfeiffer, Proc. Zool. soc. London, 1856, p. 382. Admiralty Islands.

*Helix (Papuina) flexilabris* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 49, pl. 4, fig. 68-71. Solomon Islands.

#### 106. PAPUINA SELLERSI (Cox).

*Helix sellersi* Cox, Proc. Zool. soc. London, 1872, p. 646, pl. 52, fig. 9. Guadalecanar Island.

*Helix (Papuina) sellersi* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 51, pl. 15, fig. 75.

## 107. PAPUINA YULENSIS (Brazier).

*Helix (Geotrochus) yulensis* Brazier, Proc. Linn. soc. N. S. W., 1876, **1**, p. 105.  
Yule Island, New Guinea.

*Helix (Papuina) yulensis* Pilsbry, Man. conch., 1891, ser. 2, **7**, p. 59, pl. 2,  
fig. 28-31.

*Papuina yulensis* var. Dall, Field mus. nat. hist. Zool., 1910, **7**, p. 216. Bougainville Island.

## 108. PAPUINA EDDYSTONENSIS (Reeve).

*Helix eddystonensis* Reeve, Conch. Icon., 1854, fig. 1384. Eddystone Island,  
Australia.

*Helix (Papuina) eddystonensis* Pilsbry, Man. conch., 1891, ser. 2, **7**, p. 64, pl. 10,  
fig. 79, 80. Eddystone and Simbo Islands.

## 109. PAPUINA MOTACILLA (Pfeiffer).

*Helix motacilla* Pfeiffer, Proc. Zool. soc. London, 1855, p. 113. Eddystone  
Island.

*Helix (Papuina) motacilla* Pilsbry, Man. conch., 1891, ser. 2, **7**, p. 66, pl. 11,  
fig. 6, 7.

*Helix (Geotrochus) motacilla* Smith, Proc. Zool. soc. London, 1885, p. 591.  
Simbo Island.

## 110. PAPUINA GELATA (Cox).

*Helix (Geotrochus) gelata* Cox, Proc. Zool. soc. London, 1873, p. 149, pl. 16,  
fig. 5a, 5b. Solomon Islands.

*Helix (Papuina) gelata* Pilsbry, Man. conch., 1891, ser. 2, **7**, p. 65, pl. 10, fig.  
93, 94. Small island near Eddystone Island.

## 111. PAPUINA MADDOCKSI (Brazier).

*Helix gelata* var. *maddocksi* Brazier, Proc. Linn. soc. N. S. W., 1880, **5**, p. 446.  
Small island near Timbo or Eddystone Island. Pilsbry, Man. conch., 1891,  
ser. 2, **7**, p. 66, pl. 16, fig. 11-13.

G. d. 19. mm. l. d. 15.7 mm. alt. 14. mm.

M. C. Z. 32,480. Rendova Id.

The one specimen received is of the pattern called by Brazier variety "g." It appears to be much more closely related to *eddystonensis* than to *gelata*. Although mature, it is smaller than the dimensions given for *eddystonensis* or *gelata*, and much smaller than the

dimensions of *maddocksi*, as given by Brazier, *i.e.*, g.d. 12., l.d. 9.5, alt. 7. lines.

The radula (Fig. 33, 34, M. C. Z. 32,480, slide 1,882) is similar to that of typical *Papuina* with the transverse rows straight.

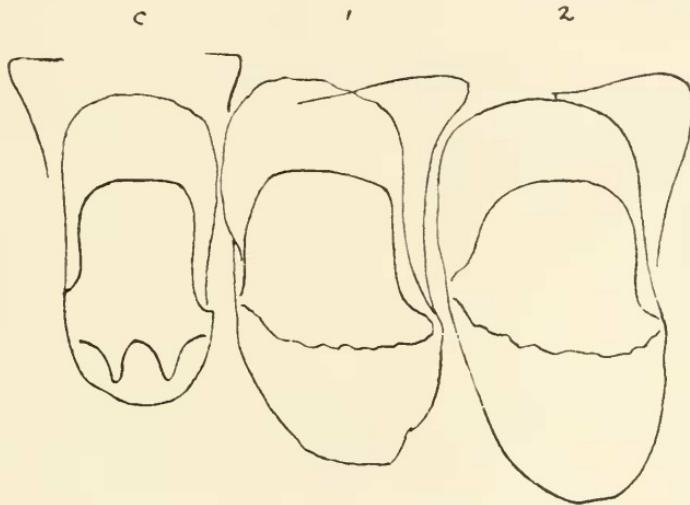


FIG. 33.—*Papuina maddocksi* (Brazier). Radula.

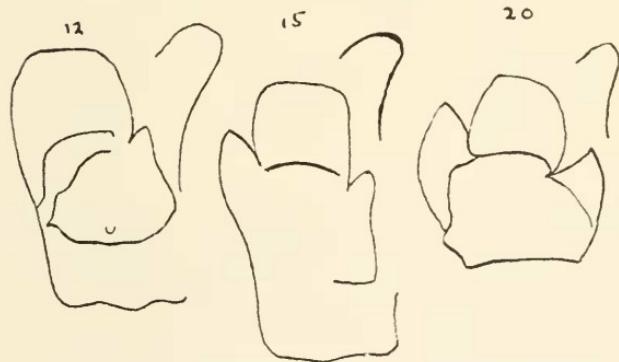


FIG. 34.—*Papuina maddocksi* (Brazier). Radula.

#### 112. PAPUINA LEUCOTHOE (Pfeiffer).

*Helix leucothoe* Pfeiffer, Proc. Zool. soc. London, 1861, p. 192. New Georgia.  
*Helix (Papuina) leucothoe* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 68, pl. 12, fig. 22-24.

113. *PAPUINA CAERULESCENS* (Angas).

*Helix (Geotrochus) caerulescens* Angas, Proc. Zool. soc. London, 1869, p. 624, pl. 48, fig. 6. Guadalcanar Island.

*Helix (Papuina) caerulescens* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 68, pl. 10, fig. 91, 92.

114. *PAPUINA LIENARDIANA* (Crosse).

*Helix lienardiana* Crosse, Journ. conch., 1864, p. 282. Insulis Salomonis. 1866, p. 53, pl. 1, fig. 1. New Georgia. Tryon, Man. conch., 1891, ser. 2, 7, p. 69, pl. 11, fig. 13-19.

*Helix lienardiana* var. *bifasciata* Crosse, Journ. conch., 1864, p. 283, 1866, p. 54, pl. 1, fig. 1a.

*Helix lienardiana* var. *pallidior* Crosse, Journ. conch., 1864, p. 283, 1866, p. 54.

*Helix lienardiana* var. *virido-flava* Crosse, Journ. conch., 1864, p. 283, 1866, p. 55.

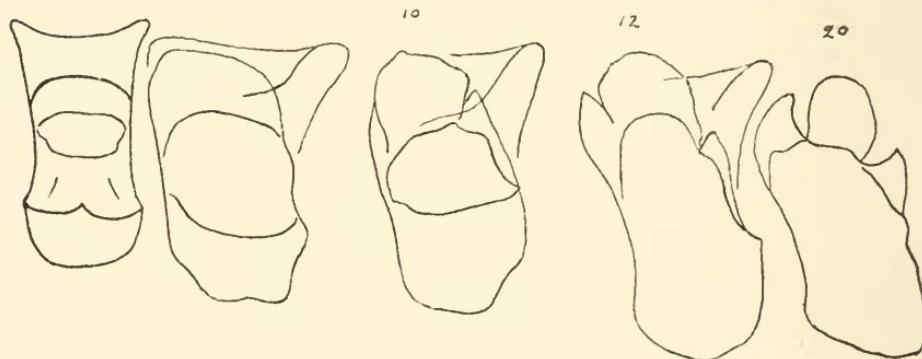


FIG. 35.—*Papuina lienardiana* (Crosse). Radula.

The one specimen from Auki, Malaita Id., is of the typical pattern, with two dark chestnut bands separated by a white peripheral zone. The bands are much broader, however, than those in the specimen figured by Crosse, being more similar in this respect to one of Pilsbry's figures (*Loc. cit.*, fig. 16).

The radula (Fig. 35, M. C. Z. 32,799, slide 1,890) is very similar to that of *P. maddocksi*, with the transverse rows straight.

115. *PAPUINA EROS* (Angas).

*Geotrochus eros* Angas, Proc. Zool. soc. London, 1867, p. 888, pl. 43, fig. 4-6. St. Stephen Island and Ysabel Island.

*Helix (Geotrochus) eros* Smith, Proc. Zool. soc. London, 1885, p. 592. Shortland Islands.

*Helix eros* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 70, pl. 15, fig. 98-101.

Fulakora, Isabel Island.

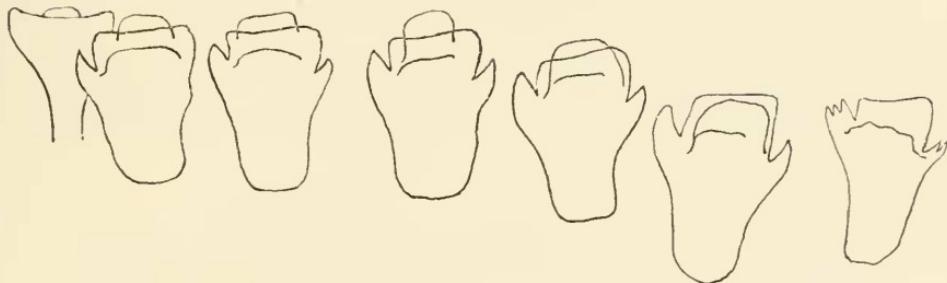


FIG. 36.—*Papuina eros* (Angas). Radula.

The specimens in this lot are somewhat different from those described by Angas, the light chestnut colored upper band containing dark chestnut blotches which descend obliquely forward and occasionally protrude above into the white sutural zone.

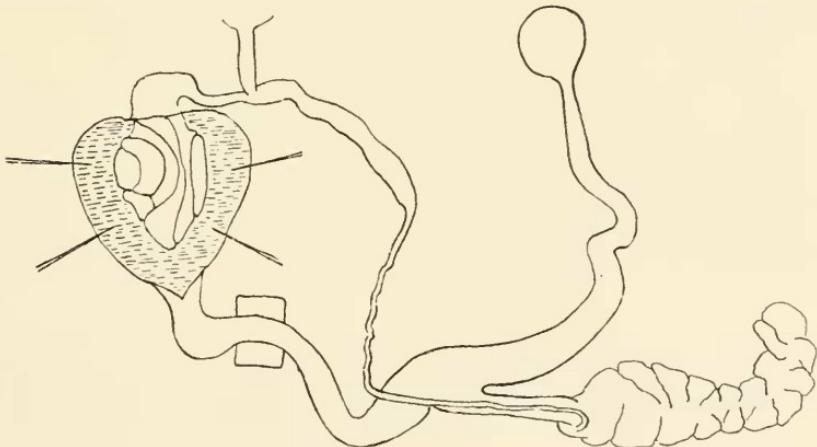


FIG. 37.—*Papuina eros* (Angas). Reproductive organs.

The radula (Fig. 36, M. C. Z. 32,488, slide 1,893) is very similar to that of *P. lienardiana*.

The reproductive organs (Fig. 37, M. C. Z. 32,488, slide 1,896) are of the *P. fringilla* type (Pilsbry, Man. conch., 1894, ser. 2, 9, p. 138,

pl. 37, fig. 7-8) with extremely long spermatheca duct, large penis and with the walls of the penis-cavity transversely corrugated. There is no papilla at the apex of the penis. The epiphallus is short and without a flagellum.

#### 116. PAPUINA REDEMPTA (Cox).

*Helix (Geotrochus) redempta* Cox, Proc. Zool. soc. London, 1873, p. 566, pl. 48, fig. 6, 6a. Solomon Islands.

*Helix (Papuina) redempta* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 70, pl. 3, fig. 40, 41.

#### 117. PAPUINA NIGROFASCIATA (Pfeiffer).

*Helix nigrofasciata* Pfeiffer, Proc. Zool. soc. London, 1863, p. 524. Admiralty Islands.

*Helix (Papuina) nigrofasciata* Pilsbry, Man. conch. 1871, ser. 2, 7, p. 71, pl. 11, fig. 8, 9.

#### 118. PAPUINA DONNAISABELLAE (Angas).

*Helix (Geotrochus) donna-isabellae* Angas, Proc. Zool. soc. London, 1869, p. 471, pl. 2, fig. 7. Eddystone Island.

*Helix (Papuina) donnaisabellae* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 71, pl. 5, fig. 87.

#### 119. PAPUINA NOVAEGEORGiensis (Cox).

*Helix novae-georgiensis* Cox, Proc. Zool. soc. London, 1870, p. 170, pl. 16, fig. 3, 3a. New Georgia.

*Helix (Planispira) novaegeorgiensis* Pilsbry, Man. conch., 1890, ser. 2, 6, p. 290, pl. 54, fig. 23, pl. 65, fig. 91.

*Helix (Papuina) novaegeorgiensis* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 72.

#### 120. PAPUINA FRINGILLA (Pfeiffer).

*Helix fringilla* Pfeiffer, Proc. Zool. soc. London, 1855, p. 113. Monda Island.

*Helix (Papuina) fringilla* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 73, pl. 16, fig. 8. New Georgia, Solomon Group, Admiralty Islands.

#### 121. CRYSTALLOPSIS HUNTERI (Cox).

*Helix hunteri* Cox, Proc. Zool. soc. London, 1871, p. 646, pl. 52, fig. 11. Guadalupe Island.

*Crystallopsis hunteri* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 105, pl. 13, fig. 41, 44, 45.

## 122. CRYSTALLOPSIS AGGIEI (Heimburg).

*Helix aggiei* Heimburg, Nachr. Mal. gesselsch., 1890, p. 191. *Insulis Salomonis.*

*Crystallopsis aggiei* Pilsbry, Man. conch., 1893, ser. 2, 8, p. 244, pl. 57, fig. 7-9.

## 123. CRYSTALLOPSIS ALLASTERI (Cox).

*Helix allasteri* Cox, Proc. Zool. soc. London, 1873, p. 564. Solomon Islands.

*Crystallopsis allisteri* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 106; 8, p. 243.

## 124. CRYSTALLOPSIS LACTIFLUA (Pfeiffer).

*Helix lactiflua* Pfeiffer, Proc. Zool. soc. London, 1861, p. 190. New Georgia. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 188, pl. 13, fig. 36-38.

*Helix isabellensis* Souverbie, Journ. conch., 1863, p. 74, 173, pl. 5, fig. 1. Ins. Isabella.

## 125. CRYSTALLOPSIS FICTILIA, sp. nov.

Plate 4, fig. 1-3.

TYPE. M. C. Z. 32,455. Auki, Malaita Id.

Shell narrowly perforate, solid, globose, spire convex, base rounded. Surface with numerous microscopic spiral striae on the early whorls, the last smooth. Color porcelain-white throughout, semitransparent, shining, unbanded. Whorls 4, convex, the last descending in front, strongly contracted immediately behind the aperture. Suture impressed. Periphery rounded excepting that portion just above the aperture which is obtusely angled or carinate. Aperture large, oblique. Peristome hardly expanded above, produced forward in a broad curve, expanded and very slightly reflexed at the periphery and below. Columella descending in a straight oblique, broadly flattened plate leaving a minute perforation at its juncture with the lower lip.

G. d. 25.4 mm. I.d. 20.7 mm. alt. 20 mm.

This species appears to be most nearly related to *C. lactiflua* Pfeiffer (Proc. Zool. soc. London, 1861, p. 190) differing in being more globose and unbanded, in having the suture less deeply impressed, the last whorl not sharply carinate, the columella obliquely rather than vertically descending. The lip is less broadly expanded and the base more swollen.

## 126. CRYSTALLOPSIS PURCHASEI (Pfeiffer).

*Helix purchasi* Pfeiffer, Proc. Zool. soc. London, 1858, p. 21, pl. 40, fig. 4. Admiralty Islands. Pilsbry, Man. conch., 1891, ser. 2, 7, p. 108, pl. 13, fig. 46, 47.

G.d. 26.3 mm. l.d. 20.6 mm. alt. 18. mm.

25. 18.7 17.4

M. C. Z. 32,460. Auki, Malaita Id.

These agree well with the description of *C. purchasi*, differing principally in being considerably larger than the dimensions given by Dohrn, viz., g.d. 22–23 mm., l.d. 17–17½ mm., alt. 13–14 mm.

As with several other Solomon Island species, described by Pfeiffer, the locality Admiralty Islands is probably wrong.

### 127. CRYSTALLOPSIS FULAKORENSIS, sp. nov.

Plate 4, fig. 4–6.

**TYPE.** M. C. Z. 32,461. Fulakora, Isabel Id.

Shell thin, transparent, depressed, imperforate, white, with a narrow opaque white line at the periphery, surface regularly obliquely finely plicatulate, and microscopically striate. Whorls  $3\frac{1}{2}$ , rapidly increasing in size, the last large, not descending in front, sharply carinate, but hardly flanged. Spire low. Aperture oblique. Peristome thin, expanded above and below, lip white. Columella straight, oblique. Base gibbous in the vicinity of the columella.

G.d. 26 mm. l.d. 19. mm. alt. 17. mm.

Aperture G.d. 14.5 mm. l.d. 13.5 mm.

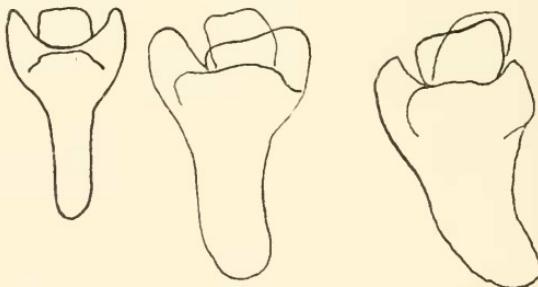


FIG. 38.—*Crystallopsis fulakorensis* Clapp. Radula.

The sharp, closely and regularly spaced, growth-striae, distinguish this species at once from any other *Crystallopsis*. In other characters, compared with *C. purchasi*, the spire is more depressed, the last whorl increases in size more rapidly, the carina is sharper, and the lip more broadly expanded. From the description of *C. rossiteri* Angas (Pilsbry, *Loc. cit.*, p. 109, pl. 21, fig. 26) it differs in color, and in lacking rose colored spots on the peristome and "numerous narrow white diaphanous bands." The figure of *C. rossiteri* (Proc. Zool. soc. Lon-

don, 1869, p. 46, pl. 2, fig. 5.) does not appear to agree well with the description and dimensions given by Angas.

The jaw is delicate, similar in shape to that of *C. tricolor*, but nearly smooth, lacking the minute ribbing and the serrate cutting edge seen in the jaw of that species.

The radula (Fig. 38, M. C. Z. 32,462, slide 1,931) differs from that of *C. tricolor* principally in the crescent shaped cutting edge of the cusp of the central tooth, and in the basal plate projecting beyond the cusp. An ectocone appears on the fifth or sixth lateral. The formula is 80-1-80, the teeth being arranged in v-shaped rows.

The reproductive organs (Fig. 39, M. C. Z. 32,462, slide 1,934)

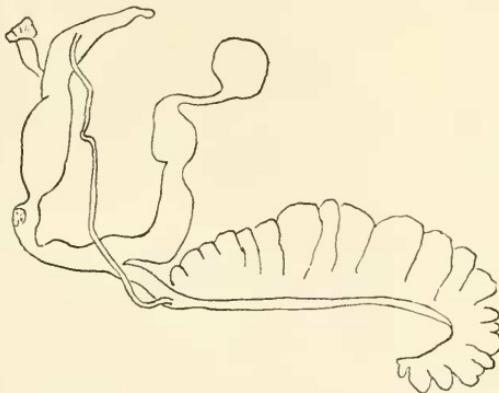


FIG. 39.—*Crystallopsis fulakorensis* Clapp. Reproductive organs.

differ from those of *C. tricolor* in having an epiphallus ending in a short flagellum. An enlargement of the spermatheca duct midway between the oviduct and the spermatheca is internally corrugated in a manner very similar to that of the internal structure of the penis.

#### 128. CRYSTALLOPSIS ROSSITERI (Angas).

*Helix (Corasia) rossiteri* Angas, Proc. Zool. soc. London, 1869, p. 46, pl. 2, fig. 5.  
Ysabel Island.

*Crystallopsis rossiteri* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 109, pl. 21, fig. 26.

#### 129. CRYSTALLOPSIS WISEMANNI (Brazier).

*Helix (Corasia) wisemanni* Brazier, Proc. Linn. soc. N. S. W., 1876, 1, p. 3.  
Solomon Archipelago.

*Crystallopsis wisemanni* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 109.

## 130. CRYSTALLOPSIS APHRODITE (Pfeiffer).

*Helix aphrodite* Pfeiffer, Proc. Zool. soc. London, 1859, p. 26, pl. 44, fig. 2.  
New Caledonia.

*Corasia aphrodite* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 109, pl. 23, fig. 8-12.  
San Christoval.

Ugi Id.

## 131. CRYSTALLOPSIS ANADYOMENE (Adams and Angas).

*Helix (Corasia) anadyomene* Adams and Angas, Proc. Zool. soc. London, 1864,  
p. 38. Guadaleanar. Smith, Proc. Zool. soc. London, 1885, p. 590.

*Corasia anadyomene* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 110.

## 132. CRYSTALLOPSIS PSYCHE (Angas).

*Helix (Corasia) psyche* Angas, Proc. Zool. soc. London, 1869, p. 624, pl. 48, fig. 1.  
New Georgia.

*Corasia psyche* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 110, pl. 23, fig. 1.

## 133. CRYSTALLOPSIS DEBILIS, sp. nov.

TYPE. M. C. Z. 32,459. Waiae, San Christoval Id.

Shell imperforate, very thin, fragile, depressed above, spire scarcely elevated, ventricose below, with faint obliquely arcuate growth-wrinkles. Color, light straw-yellow, transparent, shining. Whorls 3, slightly convex above, the

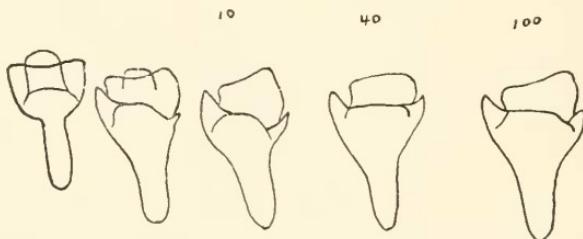


FIG. 40.—*Crystallopsis debilis* Clapp. Radula.

last concave above and below at the sharp peripheral carina, not descending in front, not constricted behind the aperture, not gibbous in the region of the columella. Aperture oblique. Peristome white, not thickened, slightly expanded, not reflexed. Columella arcuately descending, sharp, not thickened or reflexed.

G. d. 28. mm. l. d. 21.5 mm. alt. 17. mm.

The deep blue-green of the mantle shows clearly through the shell, which is so extremely delicate that it is very difficult to remove the animal without injury to the shell. The periostracum is somewhat caducous, exposing occasionally a white shell beneath.

The shell is very similar to the description of *H. (Corasia) psyche* Angas (Proc. Zool. soc. London, 1869, p. 624, pl. 48, fig. 1) from New Georgia, which I know only from the description. I do not consider it as belonging to that species because of its being apparently lighter colored, less solid, and with the base less ventricose. The dimensions are also quite different, although I am uncertain as to how Angas made his measurements. Its extremely fragile structure removes it at once from any previously described *Crystallopsis*.

The jaw is similar to that of *C. tricolor*, in having the central portion narrow and weak and the sides broad, but differs in having the ribs fewer and larger.

The radula (Fig. 40, M. C. Z. 32,459, slide 1,935-1,937) is very large, nearly as broad as long, with the teeth in v-shaped rows. There are approximately 200 rows, with a formula of 120-1-120. The teeth are similar in shape to those of *C. tricolor*.

The reproductive organs (Fig. 41, M. C. Z. 32,459, slide 1,939) of a specimen not fully mature are very similar to those of *C. fulakorensis*.

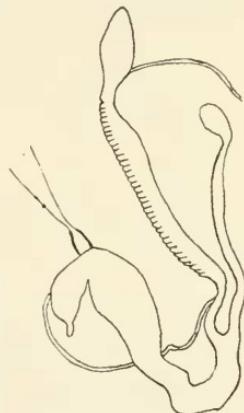


FIG. 41. — *Crystallopsis debilis* Clapp. Reproductive organs.

#### 134. CRYSTALLOPSIS TRICOLOR (Pfeiffer).

*Helix tricolor* Pfeiffer, Proc. Zool. soc. London, 1849, p. 129. St. Christoval.  
*Corasia tricolor* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 111, pl. 23, fig. 1-6.  
 San Christoval, Ugi, Santa Anna.

Several lots from Ugi Id. although showing considerable variation, appear to be true *tricolor*, nearly all of the specimens having the white sutural line articulate with brown spots on the last whorl.

G. d. 26.7 mm. l. d. 22 mm. alt. 16.4 mm.

Specimens from Wainoni Bay (M. C. Z. 32,450) are quite different from typical *tricolor*. The shell is larger, more solid, and opaque. The brown markings at the suture are restricted to a narrow thread

of interrupted spots or are entirely lacking. The contraction of the ultimate whorl just behind the aperture is very pronounced.

G. d. 31 mm. l. d. 25.5 mm. alt. 17.7 mm.

Specimens from Santa Anna (M. C. Z. 32,453) are small, fragile, transparent, high spired, and lack brown markings on the periphery or at the suture.

G. d. 24.3 mm. l. d. 21.4 mm. alt. 17.5 mm.

Immature specimens from Pamua (M. C. Z. 32,452) and Wai-ai, appear to belong to this species.

The radula (Fig. 42, M. C. Z. 32,704, slide 1,925, 1,926) is very

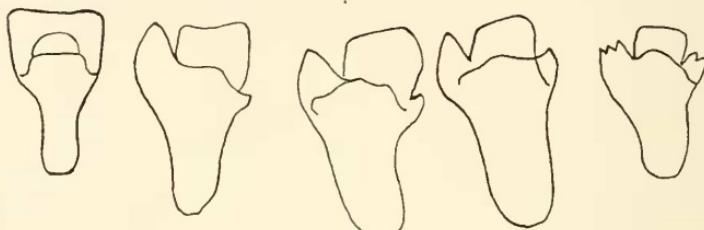


FIG. 42.—*Crystallopsis tricolor* (Pfeiffer). Radula.

similar to that of *Papuina boivini*, having v-shaped transverse rows and a formula of 80-1-80. The jaw (Fig. 43, M. C. Z. 32,704; slide 1,927, 1,928) is delicately ribbed and consequently with the cutting edge mi-

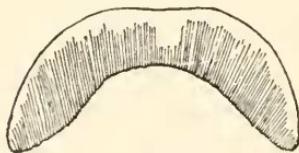


FIG. 43.—*Crystallopsis tricolor* (Pfeiffer). Jaw.

nutely serrate. The reproductive organs (Fig. 44, M. C. Z. 32,704) lack any accessory organs on the female side, there being no dart sac as in *Helicostyla*. There is practically no atrium or vestibule. The penis is large without epiphallus or flagellum. The spermatheca-duet is long and situated high on the oviduct.

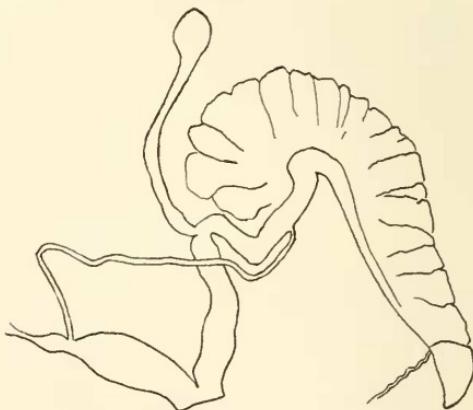


FIG. 44.—*Crystallopsis tricolor* (Pfeiffer). Reproductive organs.

## 135. CRYSTALLOPSIS TRICOLOR var. PICTA Smith.

Proc. Zool. soc. London, 1885, p. 589. North coast of San Christoval.

One specimen from Bio Id., with undulating brown stripes extending completely over the last whorl, above and below, belongs to this variety.

## 136. CRYSTALLOPSIS TRICOLOR var. TRANSENNA Pilsbry.

*Crystallopsis tricolor* var. *transenna* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 112, pl. 23, fig. 16-18, and fig. between 2 and 5. Solomon Islands.

## 137. CRYSTALLOPSIS TRICOLOR var. CONICA Gude.

Proc. Mal. soc. London, 1907, p. 235, pl. 21, fig. 13?.

## 138. CRYSTALLOPSIS BALCOMBEI (Cox).

*Helix (Corasia) balcombei* Cox, Proc. Zool. soc. London, 1873, p. 565, pl. 48, fig. 4. Solomon Islands.

*Corasia balcombei* Pilsbry, Man. conch., 1891, ser. 2, 7, p. 111, pl. 23, fig. 15.

Seven specimens from Auki, Malaita Id., agree perfectly with the description and dimensions given by Cox, but are not at all similar to the figure in the Manual of conchology. The basal region in the vicinity of the columella is quite gibbous, more so than in *C. tricolor*.

## 139. CRYSTALLOPSIS WOODFORDI (Sowerby).

*Helix (Corasia) woodfordi* Sowerby, Proc. Zool. soc. London, 1889, p. 578, pl. 56, fig. 6. Guadaleanar.

*Corasia woodfordi* Pilsbry, Man. conch., 1893, ser. 2, 8, p. 243, pl. 57, fig. 4.

## CRYPTAEGIS, gen. nov.

Shell subglobose, imperforate, thin, corneous. Whorls few, the embryonic large. Aperture large, rounded. Lip not thickened or reflexed.

Animal with flat pointed tail, lacking dorsal carina, depression, or mucous pore. Foot not tripartite, lacking pedal groove. Mantle completely enveloping and concrecent over the shell. Jaw finely ribbed without median projection. Teeth of the radula with broad gouge-like mesocones, the central without side cusps, the laterals with ectocones, the marginals with ecto-and entocones. Reproductive organs of epiphalligonous type.

## 140. CRYPTAEGIS PILSBRYI, sp. nov.

TYPE. M. C. Z. 36,841. Wainoni, San Christoval Id.

Shell globose, entirely covered by the mantle, fragile, thin, shining, slightly transparent, deep colonial buff with indistinct olive-ochre streaks, with a narrow thread of chestnut at the suture and on the edge of the columella. Externally nearly smooth, but with many faint microscopic growth-ridges and traces of still fainter broken spiral lines on the upper portion of the last whorl. Internally, in some specimens, the external growth-lines are reproduced in numerous, regularly spaced, sharp ridges. Whorls 3. Protoconch large, consisting of  $1\frac{1}{2}$  whorls, with the horn colored periostracum loosely attached, exposing more or less the milk-white calcareous embryonic shell. Suture lightly impressed. Periphery rounded. Aperture oblique, with the periostracum extending slightly beyond the peristome, which is neither thickened nor reflexed. Columella regularly curved.

G. d. 26 mm. l. d. 18.5 mm. alt. 22.5 mm.

Aperture: width, 17 mm. height, 19 mm.

Animal (in alcohol) cream-white, with the dorsal portion of the tail faint purple-brown and an irregular brown stain on the mantle just above the tail. Eye peduncles very long, the minute black eye showing midway between the base and the tip. Inferior tentacles short. Foot long. Tail flat, pointed, without dorsal carina or mucous pore. The sole of the foot simple, showing no trace of any division. Sides of the foot without pedal groove. Dorsal surface of the tail without depression for the shell, a strong thickened u-shaped ridge of the mantle forming a concavity into which the tail fits. Mantle, where stretched tightly over the shell, smooth, the remainder of the animal, irregularly, roughly, tuberculate above, the sole furrowed transversely. Respiratory orifice on the right side, slightly below the upper angle of the aperture of the shell.

Jaw (Fig. 45, M. C. Z. 36,841, slide 1,917, 1,921) very thin, in one piece, evenly and delicately ribbed, narrow and weak at the center, fastened insecurely to the upper half of the mouth.

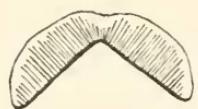


FIG. 45.—*Cryptaegis  
pilsbryi* Clapp.  
Jaw.

Radula (Fig. 46, M. C. Z. 36,841, slide 1919) shield shaped, nearly as broad as long, measuring about  $8 \times 10$  mm., composed of 250 rows of teeth with a formula of 110-1-110. Transverse rows

pilsbryi Clapp. v-shaped, central teeth with broad gouge-like cusps, the innermost laterals provided with strong entocones, an ectocone appearing on the 8th to 11th lateral, the ecto- and entocones becoming denticulate only on the outermost marginals.

The reproductive organs (Fig. 48, M. C. Z. 36,841) with no accessory organs on the female side. Vagina very short. Penis containing a large, blunt papilla completely filling the upper half of the penis-

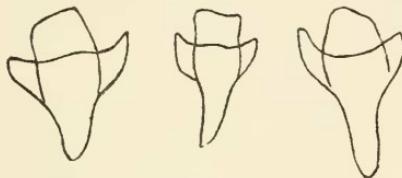


FIG. 46.—*Cryptaegeis pilosbryi* Clapp.  
Radula.

cavity, the inner wall being coarsely papillose. Epiphallus with very thick walls. Retractor-muscle inserted on the epiphallus, imbedded in the uterus for a considerable portion of its length before becoming attached to the diaphragm. Epiphallus very short, ending in a strong, stout, blunt flagellum. Vas deferens short. Spermatheca-duct long, thick securely imbedded in the uterus.

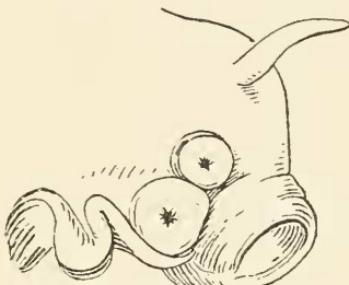


FIG. 47.—*Cryptaegeis pilosbryi* Clapp  
Head.

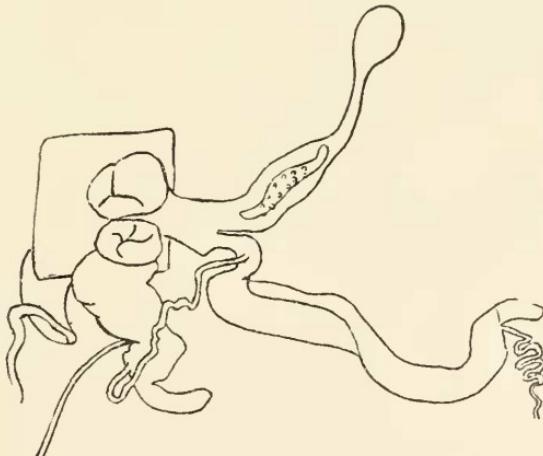


FIG. 48.—*Cryptaegeis pilosbryi* Clapp. Reproductive organs.

Reproductive organs having externally large separate openings protruding in the form of low, blunt papillae from the right side, the short atrium evidently being thrust out, the male slightly behind and below the superior tentacles, the female larger and immediately below

the male. In another specimen there is but one external orifice, but an atrium can scarcely be said to exist.

The lung is short with a rather even, coarse but thin walled reticulation. The kidney is more than twice as long as the pericardium, as in the epiphallagonous *Helices*. The secondary ureter is open. Length of lung 24 mm., of kidney 17 mm., of pericardium 7 mm.

Length of the animal (contracted in alcohol) 45. mm.

It seems probable that in life the superior tentacles are everted sufficiently far to bring the eye-spot to the tip. The protrusion of the reproductive organs externally may not be so great normally, immersion in alcohol causing many gasteropods to extend these organs. The jaw is very easily detached from the lip, which probably accounts for the fact that two of the specimens lack the jaw. The radula is almost identical with that of *Papuina rexillaris* as figured by Pilsbry (Man. conch., 1894, ser. 2, 9, pl. 37, fig. 10). This type of radula is supposed to be confined to the arboreal snails. The stomach is very large and its contents show the animal to have been entirely herbivorous, as would be expected from the shape of the teeth, and confirms the conjecture regarding its environment. In one specimen examined the lower half of the spermatheca-duct was greatly swollen and contained one free gelatinous body, which from its position and appearance is probably a spermatophore introduced from another individual. This is very different from the smooth, slender spring-like, spermatophore of the zonitoids, in that it has two rows of tubercles on its inner face, recalling when magnified the arm of an octopod.

The systematic position of this species is very uncertain. The radula is similar to that of *Papuina*, and I am inclined to consider it as a very highly specialized and comparatively recent offshoot from *Papuina* of some closely related group.

Dr. Pilsbry very kindly allows me to make use of the following note concerning a specimen sent to him:—"The teeth agree wholly with those of your figure, but I find the formula to be 130-1-130. In radulae with so great a number of teeth, such variation is not unusual. The ectocone appears weakly on the 11th tooth. In the genitalia our figures agree excepting as to the orifice. It is not double in the specimen I examined. In your specimen it is simply more exerted, a not uncommon occurrence among the pulmonates."

## BULIMULIDAE.

141. PLACOSTYLUS (PLACOCHARIS) FOUNAKI (Hombron and Jacquinot).

*Bulimus founaki* Hombron and Jacquinot, Voy. Pol Sud. Zool. Moll., pl. 8, fig. 13-15. Isles Salomon.

*Bulimus hombroni* Crosse, Journ. conch., 1871, p. 178.

*Placostylus (Placocharis) founaki* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 79, pl. 34, fig. 10-14. Ysabel Island, Faro Island.

Fulakora, Ysabel Id.

142. PLACOSTYLUS (PLACOCHARIS) FOUNAKI var. PALETUVIANUS (Gassies).

*Bulimus paletuvianus* Gassies, Journ. conch., 1859, p. 370. Nou, New Caledonia.

*Bulimus rhizophorarus* Gassies, Faune Conch. Nouv. Caled., 1871, **2**, p. 91.

*Placostylus (Placocharis) founaki* var. *paletuvianus* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 80, pl. 34, fig. 18, 19. Solomons?.

143. PLACOSTYLUS (PLACOCHARIS) KREFTII (Cox).

*Bulimus (Charis) kreftii* Cox, Proc. Zool. soc. London, 1872, p. 19, pl. 4, fig. 4. Solomon Islands.

*Placostylus (Placocharis) kreftii* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 81, pl. 35, fig. 23-25.

144. PLACOSTYLUS (PLACOCHARIS) GUPPYI (Smith).

*Placostylus guppyi* Smith, Proc. Zool. soc. London, 1891, p. 489, pl. 40, fig. 6. Solomon Islands.

*Placostylus (Placocharis) guppyi* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 82, pl. 35, fig. 26.

145. PLACOSTYLUS (PLACOCHARIS) MACFARLANDI (Brazier).

*Bulimus (Eumecostylus) macfarlandi* Brazier, Proc. Linn. soc. N. S. W., 1875, **1**, p. 4. Solomon Archipelago.

*Placostylus (Placocharis) macfarlandi* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 83, pl. 35, fig. 21, 22.

146. PLACOSTYLUS (PLACOCHARIS) CALUS (Smith).

*Placostylus calus* Smith, Proc. Zool. soc. London, 1891, p. 489, pl. 40, fig. 7. Solomon Islands.

*Placostylus (Placocharis) calus* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 83, pl. 35, fig. 20.

147. PLACOSTYLUS (PLACOCHARIS) MACGILLIVRAYI (Pfeiffer).

*Bulimus macgillivrayi* Pfeiffer, Proc. Zool. soc. London, 1855, p. 108, pl. 32, fig. 2. Wanderer Bay, Guadalecanar.

*Placostylus (Placocharis) macgillivrayi* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 84, pl. 36, fig. 27-30.

148. PLACOSTYLUS (PLACOCHARIS) PALMARUM (Mouson).

*Bulimus palmarum* Mousson, Conch., 1869, p. 62, pl. 4, fig. 5. Makite, ile de Saint-Christoval.

*Placostylus (Placocharis) palmarum* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 85, pl. 36, fig. 31, 32. Makito, San Christoval Id.

149. PLACOSTYLUS (PLACOCHARIS) PALMARUM var. MINOR (Kobelt).

*Placostylus palmarum* var. *minor* Kobelt, Conch. cab., 1891, p. 42, pl. 9, fig. 6-9.

*Placostylus (Placocharis) palmarum* var. *minor* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 86, pl. 36, fig. 33, 34.

150. PLACOSTYLUS (PLACOCHARIS) STRANGEI (Pfeiffer).

*Bulimus strangei* Pfeiffer, Proc. Zool. soc. London, 1855, p. 8. Eddystone Island.

*Placostylus (Placocharis) strangei* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 87, pl. 34, fig. 15-17.

151. PLACOSTYLUS (PLACOCHARIS) STUTCHBURYI (Pfeiffer).

*Bulimus stutchburyi* Pfeiffer, Proc. Zool. soc. London, 1860, p. 137, pl. 51, fig. 8. Erumanga, New Hebrides.

*Placostylus (Placocharis) stutchburyi* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 88, pl. 36, fig. 35-37. New Georgia, (Brazier).

152. PLACOSTYLUS (PLACOCHARIS) STUTCHBURYI var. MENDANAEE (Kobelt).

*Placostylus (scottii) mendanae* Kobelt, Conch. cab., 1891, p. 133, pl. 32, fig. 6, 7.

*Placostylus (Placocharis) stutchburyi* var. *mendanae* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 89, pl. 37, fig. 40, 41. Solomon Islands.

## 153. PLACOSTYLUS (PLACOCHARIS) SCOTTII (Cox).

*Bulimus (Eumecostylus) scottii* Cox, Proc. Zool. soc. London, 1873, p. 152.  
Solomon Islands.

*Placostylus (Placocharis) scottii* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 90,  
pl. 37, fig. 38, 39.

## 154. PLACOSTYLUS (PLACOCHARIS) ULIGINOSUS 'Heimburg' (Kobelt).

*Placostylus uliginosus* von Heimburg, Kobelt, Conch. cab., 1891, p. 73, pl. 17,  
fig. 6, 7.

*Placostylus (Placocharis) uliginosus* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 91,  
pl. 37, fig. 46, 47. Solomon Islands.

## 155. (PLACOSTYLUS (PLACOCHARIS) HOBSONI (Cox).

*Bulimus (Placostylus) hobsoni* Cox, Proc. Linn. soc. N. S. W., 1892, ser. 2, **6**,  
p. 567, pl. 20, fig. 2, 3. Malanta Island.

*Placostylus (Placocharis) hobsoni* Pilsbry, Man. conch., 1900, **13**, p. 91, pl. 37,  
fig. 44, 45. Maleita Island.

## 156. PLACOSTYLUS (PLACOCHARIS) HARGRAVESI (Cox).

*Bulimus hargravesi* Cox, Proc. Zool. soc. London, 1871, p. 323, pl. 34, f. 3.  
Treasury Island.

*Placostylus (Placocharis) hargravesi*, Pilsbry, Man. conch., 1900, ser. 2, **13**, p.  
93, pl. 38, fig. 49-51.

## 157. PLACOSTYLUS (PLACOCHARIS) HARGRAVESI AUKIENSIS, var. nov.

TYPE. M. C. Z. 32,442. Auki, Malaita Id.

G. d. 22. mm. alt. 54.5. mm. aper. 32. mm. (Type).

22.	48.	29.
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Differs from typical *P. hargravesi* only in being much smaller and more fragile, in generally lacking the parietal tubercle and in having but 5 whorls. It appears to be a form which lives under conditions less favorable than those of the locality occupied by typical *hargravesi* from Treasury Island, and therefore shows characteristics one would expect in possessing a thinner, more delicate and smaller shell, and for the same reason lacking a parietal tooth in all but two specimens in one lot of forty-seven.

The comparatively large swollen neionic whorls and the deeply impressed suture, render it impossible to connect this variety with *P. uliginosus* "Heimb." Kobelt (Pilsbry, *Loc. cit.*, p. 91, pl. 37, fig.

46, 47), or with *P. hobsoni* (Cox) (Pilsbry, *Loc. cit.*, fig. 44, 45), described from Malaita Id. The same differences separate this variety from *P. hargravesi* var. *heimburgi* Kobelt, (Pilsbry, *Loc. cit.* p. 93, 236, pl. frontisp., fig. 5) which appears from the description and figure to be much more closely related to *uliginosus* than to *hargravesi*.

The jaw of an immature specimen is similar to that of *P. miltocheilus*, but with fewer (approximately forty) and broader plates. The radula (Fig. 49, M. C. Z. 32,442, slide 1,950) of the same immature

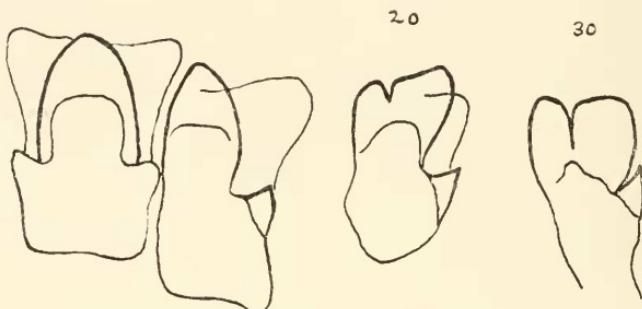


FIG. 49.—*Placostylus (Placocharis) hargravesi aukiensis* Clapp. Radula.

individual has the teeth arranged in slightly v-shaped rows. The formula is about 40-1-40. The ectocones of the central tooth are large, as are also those of the laterals and marginals. The division of the mesocone into two cusps does not begin until about the 15th lateral.

#### 158. PLACOSTYLUS (PLACOCHARIS) HARGRAVESI var. HEIMBURGI (Kobelt).

*Placostylus hargravesi* var. *heimburgi* Kobelt, Conchyl. cab., 1891, p. 38, pl. 8, fig. 6, 7.

*Placostylus (Placocharis) hargravesi* var. *heimburgi* Pilsbry, Man. conch., 1900, ser. 2, 13, p. 93, pl. frontisp., fig. 5.

#### 159. PLACOSTYLUS (PLACOCHARIS) ARTUS, sp. nov.

Plate 4, fig. 7, 8.

TYPE. M. C. Z. 32,448. Florida Id.

Shell compressed umbilicate, solid, slender, with numerous thread-like growth-striae, and a microscopic wavy spiral striation. Color, chalky white beneath a light olive-brown periostracum, with occasional narrow chestnut streaks in the more pronounced growth-wrinkles. Somewhat shining. Spire

slightly convex. Whorls  $5\frac{1}{2}$ , slightly convex. Apex obtuse, light straw color, earlier  $2\frac{1}{2}$  whorls punctate. Suture impressed, with a narrow spiral groove below, the intervening space white, lacking the periostracum. Aperture white within. Peristome thickened within. Outer lip not reflexed or expanded. Basal lip but slightly expanded. Columella broadly reflexed, nearly closing the umbilicus a strong fold entering the aperture. Parietal callus, thin, dark purple-brown in color, bearing a small white tubercle above the columellar fold.

G. d. 22.5 mm. alt. 64. mm. aper. 31. mm.

In the specimen which I have selected and figured as the type, considering it as probably most typical of the species, the parietal tooth is but slightly developed. In other characters, however, the specimen selected is most typical. Probably most closely related to *P. kreftii* (Cox), in its dimensions, being much more elongate and slender; in usually possessing a parietal tubercle, and in having the parietal callus purple-brown rather than white.

The parietal tubercle, being developed late in the life of the individual, it is to be expected that it should show considerable variability. In several species possessing a strong parietal tubercle, mature individuals are occasionally found with the tubercle hardly visible, or entirely lacking.

#### 160. PLACOSTYLUS (PLACOCHARIS) MANNI, sp. nov.

Plate 5, fig. 1, 2.

TYPE.—M. C. Z. 32,437. Auki, Malaita Id.

Shell minutely perforate, solid, large, long-ovate, acuminate above, swollen below. Penultimate whorl spirally striate. Last whorl with irregular heavy growth-wrinkles and coarsely malleated. Color dark reddish chestnut, in immature specimens the last whorl is overlaid with iridescent olive-green, exposing frequently the chestnut color beneath. Periostracum lost on early whorls leaving the spire light yellowish red. Surface somewhat shining. Whorls 6, convex, the last half of the last whorl descending rapidly in front and becoming considerably swollen. Protoconch consisting of  $2\frac{1}{2}$  minutely punctate whorls, more or less worn smooth. Aperture bluish white within. Peristome white, outer lip sinuous, thickened within, not expanded or reflexed. Columella with a very strong white fold. Parietal callous white with a prominent white round tubercle just above the columellar fold.

G. d. 41. mm. alt. 85. mm. l. a. of aper. 43.5 mm.

This species is probably most nearly related to *P. macfarlandi* (Brazier), differing in being darker colored and in having the last whorl swollen almost to the point of distortion. The lip is much less thickened and expanded, the curve of the columella more pronounced.

## 161. PLACOSTYLUS COXI (Pease).

*Bulimus (?Borus) coxi* Pease, Amer. journ. conch., 1871, 7, p. 197. "Insl. Solomonis."

*Placostylus (?) coxi* Pilsbry, Man. conch., 1900, ser. 2, 13, p. 90. Solomon Islands.

## 162. PLACOSTYLUS (EUPLACOSTYLUS) CYLINDRICUS Fulton.

Ann. mag. nat. hist., 1906, ser. 7, 19, p. 154, pl. 10, fig. 3. Isabel Island.

## 163. PLACOSTYLUS (EUMECOSTYLUS) CLERYI (Petit).

*Bulimus cleryi* Petit, Journ. conch., 1850, p. 56, pl. 4, fig. 1.

*Placostylus (Eumecostylus) cleryi* Pilsbry, Man. conch., 1900, ser. 2, 13, p. 96, 236, pl. 40, fig. 68-70; pl. frontis., fig. 7, 8.

Wai-ai and Wainoni, San Christoval Id.

## 164. PLACOSTYLUS (EUMECOSTYLUS) PHENAX, sp. nov.

Plate 5, fig. 3, 4.

TYPE. M. C. Z. 32,446. Wainoni, San Christoval Id.

Shell, rimate, oblong fusiform, thick, solid, outline of the spire nearly straight. Surface of the later whorls sculptured with coarse irregular growth-wrinkles, and finely, irregularly, spirally malleated. Color of the last two whorls, olive-brown more or less painted with narrow dark chestnut zigzag lines, particularly on the penultimate whorl. Whorls  $6\frac{1}{2}$  (?), the earlier, lacking the peristylum, purplish red, the neponic whorls worn nearly smooth, a portion amputated and plugged. The last whorl more rapidly descending, shouldered and constricted below the suture. Aperture narrow, auriform, retracted below, bluish white within, roughened internally by the external growth-wrinkles. Outer and basal lip expanded, thickened within cream-white or faintly edged with light brown. Columella broadly and abruptly expanded, entering the aperture in a thickened spiral fold. Parietal callus, thin, shining, white or tinged with light brown, with or without a strong elongate tubercle parallel to the entering fold of the columella.

G. d. 27 mm. alt. 82.5 mm. aper. 43. mm.

This species is apparently closely related to *P. cleryi* differing only in being smaller, with narrower aperture, and with the columellar fold more abruptly twisted. The neponic whorls are so worn and broken in every specimen before me that it is difficult to ascertain the exact number of pitted whorls, but it is probable that there are not more than

$2\frac{1}{2}$ . The species, however, is so clearly related to *cleryi*, that I have placed it in the same subgenus, Eumecostylus, in spite of its probable difference in the number of pitted nepionic whorls, believing that if the difference proves to be true that the definition of Eumecostylus should be modified. There is some resemblance between this species and the smaller *P. (Euplacostylus) koroensis* Garrett (Pilsbry, *Loc. cit.*, p. 101) particularly in the probable number of pitted whorls. One species of Placostylus from the Solomon Islands has been described as belonging to this subgenus, (*P.(Euplacostylus) cylindricus* Fulton, Ann. mag. nat. hist., 1907, ser. 7, **19**, p. 154, pl. 10, fig. 3). I am inclined to believe that this also should be removed to Eumecostylus, the restriction based on the number of pitted nepionic whorls having been removed. This would at present render Eumecostylus a Solomon Island group, Euplacostylus, Fijian.

#### 165. PLACOSTYLUS (EUMECOSTYLUS) SANCHRISTOVALENSIS (Cox).

*Bulimus san-christovalensis* Cox, Proc. Zool. soc. London, 1870, p. 172, pl. 16, fig. 7. "San Christoval."

*Placostylus (Eumecostylus) sanchristovalensis* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 97, pl. 37, fig. 48.

#### 166. PLACOSTYLUS (ASPASTUS) MILTOCHEILUS (Reeve).

*Bulimus miltocheilus* Reeve, Conch. Icon., 1848, pl. 49, fig. 322. San Christoval.

*Placostylus (Aspastus) miltocheilus* Pilsbry, Man. conch., 1900, ser. 2, **13**, p. 94, pl. 38, f. 53, 54. Port Makeva, Wanga Bay, Recherche Bay, and Port Achard.

G. d. 26 mm. alt. 62. mm. longest axis of aperture from outer edge of lip 36. mm.

M. C. Z. 32,429. Pamua, San Christoval Id.

Specimens from this locality appear to be typical *miltocerlus*.

G. d. 28. mm. alt. 67. mm. long. axis of aper 42. mm.

Similar to those from Pamua differing in being larger and with much stronger growth-wrinkles. The base generally less swollen or sac-like, columella more broadly expanded and flattened; the fold in the aperture, stronger, and white rather than vermillion as in typical *miltocerlus*.

Wainoni Bay, San Christoval.

167. *PLACOSTYLUS (ASPASTUS) MILTOCHEILUS* var. *STRAMINEUS*  
Brazier.

Proc. Linn. soc. N. S. W., 1895, ser. 2, 9, p. 569. Ugi. Pilsbry, Man. conch., 1900, ser. 2, 13, p. 95, pl. 38, fig. 55.

Two immature specimens appear to belong to this variety.

M. C. Z. 32,436. Three Sisters Id.

G.d. 22. mm. alt. 56. mm. l.a. of aper. 31. mm.

M. C. Z. 32,433. Ugi Id.

Apparently the only form found on Ugi and very abundant.

G.d. 19. mm. alt. 44. mm. l.a. of aper. 26.5 mm.

18.5 mm.	40. mm.	25.5 mm.
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M. C. Z. 32,434. Bio Id.

A form with the dark red peristome of *stramineus*, but much smaller than the specimens of that variety from Ugi. The shell is white, having lost the yellow cuticle.

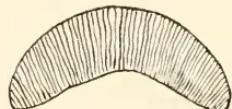


FIG. 50.—*Placostylus (Aspastus) miltocheilus stramineus* Brazier. Jaw.

The jaw (Fig. 50, M. C. Z. 32,434, slide 1,950) of this form is composed of approximately fifty narrow plates.

The radula (Fig. 51, M. C. Z. 32,434, slide 1,951) is broad with about 120 broadly v-shaped rows of teeth with a formula of 60-1-60. The central tooth is provided with a strong mesocone

and also small ectocones. The laterals possess a large mesocone and

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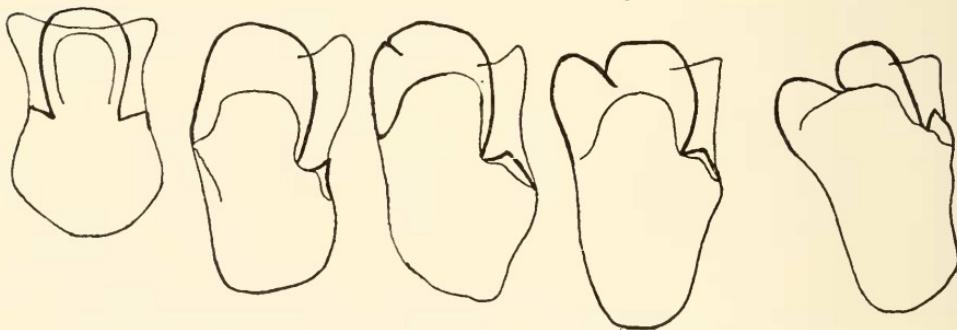


FIG. 51.—*Placostylus (Aspastus) miltocheilus stramineus* Brazier. Radula.

an ectocone but no entocone. At about the 10th lateral a notch appears in the mesocone, rapidly increasing in size until at the 13th tooth the mesocone has been divided into two nearly equal cusps.

The reproductive organs (Fig. 52, M. C. Z. 32,434, slide 1,952) are similar to those of other species of the genus which have been described.

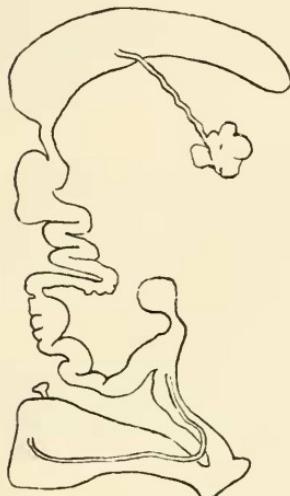


FIG. 52.—*Placostylus (Aspastus) miltocheilus stramineus* Brazier.  
Reproductive organs.

The penis is very large, the retractor-muscle proportionately short and small. The vas deferens is firmly imbedded in the loose fitting external integument of the penis and is also closely bound to the oviduct. The spermatheca-duct is very short. The uterus is nearly black, very long, with many convolutions difficult to trace. Its color is similar to that of the intestine.

The kidney (Fig. 53, M. C. Z. 32,434, slide 1,953) is short and triangular typical of the genus.

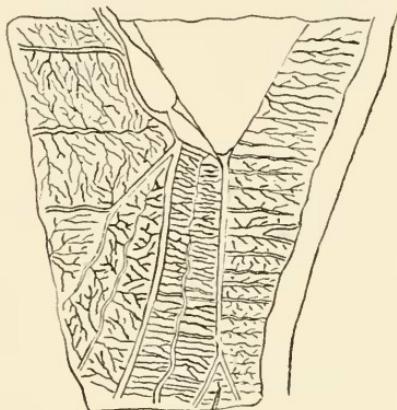


FIG. 53.—*Placostylus (Aspastus) miltocheilus stramineus* Brazier. Kidney.

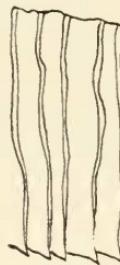


FIG. 54.—*Placostylus (Aspastus) miltocheilus stramineus* Brazier. Sculpture of shell.

#### 168. PLACOSTYLOS (ASPASTUS) MILTOCHEILUS ALBOLABRIS (Brazier).

*Bilimus* (*Aspastus*) *miltocheilus* var. *albolabris* Brazier, Proc. Linn. soc. N. S. W., 1895, ser. 2, 9, p 569. San Christoval and Santa Anna.

*Placostylus* (*Aspastus*) *miltocheilus* var. *albolabris* Pilsbry, Man. conch., 1900, ser. 2, 13, pl. 38, fig. 52.

Specimens of the variety *albolabris* were found at the localities noted; those from Santa Anna varying greatly in size.

The parietal callous is much thicker and more clearly defined in this variety than it is in any of the others.

G.d. 29. mm. alt. 57. mm. long axis of aper. 36. mm.

M. C. Z. 32,430. Bulimatarivo (or Star Harbor), San Christoval Id. Large specimen, G.d. 25. mm. alt. 63. mm. l. a. of aper. 37. mm. Small specimen, 20.5 mm. 47. 29.5

M. C. Z. 32,431. Santa Anna Id.

169. PLACOSTYLUS (ASPASTUS) MILTOCHEILUS MINOR Brazier.

*Bulimus (Aspastus) miltocheilus* var. *minor* Brazier, Proc. Linn. soc. N. S. W., 1895, ser. 2, 9, p. 570. Ulana Id.

170. PLACOSTYLUS (ASPASTUS) SELLERSI (Cox).

*Bulimus sellersi* Cox, Proc. Zool. soc. London, 1871, p. 644, pl. 52, fig. 3. Guadaleanar Id.

*Placostylus (Aspastus) sellersi* Pilsbry, Man. conch., 1900, ser. 2, 13, p. 95, pl. 38, fig. 56, 57.

171. SIMPULOPSIS SALOMONIA (Pfeiffer).

*Vitrina salomonia* Pfeiffer, Zeitschr. malak., 1853, p. 51. *Insulis Salomonis*.

*Simpulopsis salomonia* Pilsbry, Man. conch., 1899, ser. 2, 12, p. 226, pl. 63, fig. 76-78.

Pilsbry states that "possibly the locality is erroneous. If really from the Solomon Islands it will probably prove to belong to the Zonitidae."

STENOGYRIDAE.

172. OPEAS GRACILE (Hutton)?

*Bulimus grecilis* Hutton, Journ. Asiatic. soc. Bengal, 1834, 3, p. 84, 93.

*Opeas gracile* Pilsbry, Man. conch., 1906, ser. 2, 18, p. 125, pl. 18, fig. 3-6.

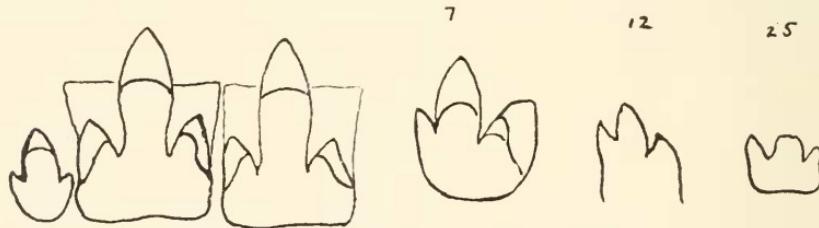


FIG. 55.—*Opeas gracile* (Hutton). Radula.

Labete, New Georgia Id. Makambo, Florida Id. Auki, Malaita Id. Three Sisters Id. Wainoni, San Christoval Id.

Less than twenty specimens in all, the majority immature, were obtained from the above localities. Some are undoubtedly *O. gracile*. Of the others it would be necessary to have a much larger series before attempting to decide to which of the Polynesian species they should be referred.

### PARTULIDAE.

#### 173. PARTULA FLEXUOSA Hartman.

Proc. Acad. nat. sci. Phila., 1885, p. 204, fig. St. George's and Eddystone Islands. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 290, pl. 35, fig. 4, 5, 13.

#### 174. PARTULA HASTULA Hartman.

Proc. Acad. nat. sci. Phila., 1886, p. 33, pl. 2, fig. 9. Erromango Island, Solomon Islands. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 291, pl. 35, fig. 6-8. Simbo or Eddystone Island (Brazier).

#### 175. PARTULA INCURVA Hartman.

Proc. Acad. nat. sci. Phila., 1886, p. 31, pl. 2, f. 3. Rubiana (Brazier). Pilsbry, Man. conch., 1909, ser. 2, 20, p. 291, pl. 35, fig. 9, 10.

#### 176. PARTULA REGULARIS Hartman.

Proc. Acad. nat. sci. Phila., 1886, p. 31, pl. 2, fig. 4. Savu, Galeria Id. (Brazier). Pilsbry, Man. conch., 1909, ser. 2, 20, p. 292, pl. 33, fig. 11, 12.

#### 177. PARTULA PERLUCENS Hartman.

Proc. Acad. nat. sci. Phila., 1886, p. 31, pl. 2, fig. 2. Ugi or Golfe Island. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 293, pl. 35, fig. 12.

#### 178. PARTULA HOLLANDIANA Pilsbry.

Man. conch., 1909, ser. 2, 20, p. 293, pl. 37, fig. 8-10. Solomon Island.

#### 179. PARTULA ALABASTRINA Pfeiffer.

Proc. Zool. soc. London, 1856, p. 390. Salomon's Islands. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 294.

#### 180. PARTULA MICANS Pfeiffer.

Proc. Zool. soc. London, 1852, p. 138. Insulis Salomonis. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 295, pl. 36, fig. 10, 11, 13, 14. Solomon Islands, Shortland Island.

Dr. Mann's collection contains the following forms of this species:—

1. Alt. 15 mm. g. d. 9 mm. l. d. 8 mm. aperture with peristome, length 9 mm., width 6.4 mm.

Apparently typical *micans*.

M. C. Z. 32,544. Bio Id.

One immature specimen (M. C. Z. 36,792) identical with specimens from Bio Id. was taken on Ugi Id.

2. Alt. 15.8 mm. g.d. 9 mm. l.d. 7.4 mm. aperture, length 9 mm., width, 6.2 mm.

M. C. Z. 32,545. Three Sisters Id.

Very similar to the specimens from Bio, but with slightly less convex whorls, the spire being more straight sided and the suture less deep.

3. Alt. 14 mm. g.d. 7.5 mm. l.d. 6.6 mm. aperture, length 7.7 mm., width 5 mm.

M. C. Z. 36,791. Rubiana, New Georgia.

The single specimen from this locality differs from the specimens from Bio in being smaller and more slender. *P. incurva* Hartman, described from Rubiana is a much larger species.

#### 181. PARTULA CINEREA Albers.

Malak. blatter, 1857, 4, p. 98. Insulis Salomonis. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 296.

#### 182. PARTULA COXI "Angas" Hartman.

Proc. Acad. nat. sci. Phila., 1885, p. 217. 1886, p. 32, pl. 2, fig. 7. Ysabel Island. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 296, pl. 36, fig. 1-4.

#### 183. PARTULA PELLUCIDA Pease.

Proc. Zool. soc. London, 1871, p. 457. Guadaleanar. Pilsbry, Man. conch., 1909, ser. 2, 20, p. 297, pl. 36, fig. 5, 6. Solomon Islands.

### SUCCINEIDAE.

#### 184. SUCCINEA SIMPLEX Pfeiffer.

Proc. Zool. soc. London, 1854, p. 123. Smith, Proc. Zool. soc. London, 1885, p. 595.

Labeti, Rubiana Lagoon, New Georgia. Paiua, Ugi Id. Bio Id.

#### EXPLANATION OF THE PLATES.

All the figures are from photographs by George Nelson, and natural size except when otherwise noted.

**PLATE 1.**

CLAPP.—Some Mollusca from the Solomon Islands.

PLATE 1.

- Fig. 1-5. *Helicarion malaitensis* Clapp.
- Fig. 6-8. *Fretum malaitensis* Clapp.
- Fig. 9-11. *Fretum concavum* Clapp.
- Fig. 12-14. *Fretum manni* Clapp.  $\times 3$



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PLATE 2.

CLAPP.—Some Mollusca from the Solomon Islands.

PLATE 2.

- Fig. 1-3. *Fretum pamuaensis* Clapp.  $\times 3$ .
- Fig. 4-6. *Fretum smithi* Clapp.  $\times 3$ .
- Fig. 7-9. *Fretum sororum* Clapp.  $\times 3$ .
- Fig. 10-15. *Trochomorpha aukiensis* Clapp.



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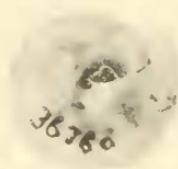
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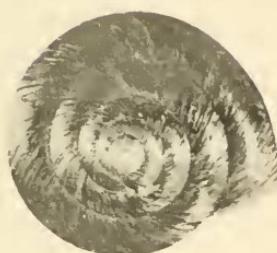
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**PLATE 3.**

CLAPP.—Some Mollusca from the Solomon Islands.

PLATE 3.

- Fig. 1-3. *Trochomorpha concava* Clapp.
- Fig. 4-6. *Trochomorpha flava* Clapp.
- Fig. 7-9. *Trochomorpha manni* Clapp.
- Fig. 10-12. *Trochomorpha rendovaensis* Clapp.
- Fig. 13-15. *Trochomorpha zenobiella* Clapp.



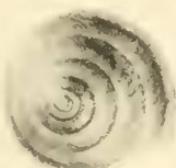
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PLATE 4.

CLAPP.—Some Mollusca from the Solomon Islands.

PLATE 4.

- Fig. 1-3. *Crystallopsis fictilia* Clapp.  
Fig. 4-6. *Crystallopsis fulakorensis* Clapp.  
Fig. 7, 8. *Placostylus (Placocharis) artus* Clapp.



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PLATE 5.

CLAPP.—Some Mollusca from the Solomon Islands.

PLATE 5.

Fig. 1, 2. *Placostylus (Placocharis) manni* Clapp.  
Fig. 3, 4. *Placostylus (Eumecostylus) phenax* Clapp.



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